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Normative Beliefs, Attitudes, and Social Norms: People Reduce Waste as an Index of Social Relationships When Spending Leisure Time

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Abstract: This study has adopted and refined Ajzen’s theory of planned behavior, theory of reasoned action, and the value–belief–norm theory by Stern et al. to investigate the effects of normative beliefs, attitudes, and social norms on pro-environmental behavioral intentions. A total of 391 valid responses were collected from visitors to a theme park in Taiwan. A structure equation analysis indicated that the overall fit of the proposed model was supported. It was also found that both attitudes and social norms had positive and significant influence on waste reduction. While the results did not reveal any direct relation between normative beliefs and behavioral intentions, normative beliefs had positive direct influence on social norms and attitudes, which in turn had an impact on behavioral intentions. The findings provided further insights about pro-environmental behavioral intentions from an Asia perspective and highlighted important implications for environmental policies and education to reduce waste.

Keywords: attitude; normative belief; pro-environmental behavioral intentions; social norm; theory of planned behavior; value–belief–norms theory; Taiwan

1. Introduction

Increasing environmental problems have posed a significant threat to environmental sustainability and this has prompted key stakeholders (e.g., policy makers, businesses, and consumers) to invest substantial efforts to enhance environmental behavior, which can be broadly defined as the types of behavior that seek to change the availability of materials or energy from the environment [1]. Accordingly, pro-environmental behavior (PEB), which refers to “behavior that consciously seeks to minimize the negative impact of one’s actions on the natural and built world” [2] (p. 240), has been regarded as one of the key challenges to achieving environmental sustainability [3]. Therefore, further insights on why individuals undertake pro-environmental behavior can provide a more in-depth understanding about how behavioral change can be made to address those environmental problems.

A review of the literature (e.g., [4,5]) indicates that, while environmental education can assist in fostering pro-environmental behavior, this alone does not necessarily lead to a decision towards such a behavioral pattern change. Instead, some studies [4] argue that having relevant knowledge and information about an environmental issue can have little effect on decision-making but rather the understanding of subjective beliefs and attitudes that individuals hold towards the issue can reveal greater insights on how these beliefs and attitudes affect intention and pro-environmental behavior.

It is through such an understanding that sustainable pro-environmental behavior can be facilitated and attained.

Researchers have typically used the theory of reasoned action (TRA) by Ajzen and Fishbein [6] and theory of planned behavior (TPB) by Ajzen [7,8], to explain pro-environmental behaviors. These theories posit that engaging in pro-environmental behavior is mainly influenced by positive attitudes toward such behaviors and perceived social pressure to perform the behavior. The theory of planned behavior has been considered as a major theoretical framework used to explain the variables influencing pro-environmental behaviors in a range of settings [9–12]. For example, Rhodes et al. [12] indicate that intention, planning, and perceived behavioral control have independent effects on recycling behavior, and intention has a significant indirect effect on recycling through planning. In another study by Han et al. [9], the findings revealed that attitudes, subjective norms, and perceived behavioral control positively affected customers' intention to stay at a green hotel. Consistent with the theory, Lam [11] suggests that attitudes, perceived behavioral control, and normative belief are regarded as important factors affecting people's intentions to conserve water usage [13,14]. Another study by Howell et al. [10] reveals that attitudes, perceived behavioral control and subjective norm can influence behavior and behavioral intention towards the anti-introduction of aquatic invasive species. However, it has been observed in these prior studies that subjective norms which is a key component of the theory of reasoned action and theory of planned behavior, has mainly been investigated as "the perceived social pressure to perform or not to perform the behavior" in question or in a specific situation, whereby the greater the pressure to support or oppose a norm, the stronger the effect of behaviors [7]. As a result, descriptive norms which represent individuals' perceived practices of most people with whom one has interacted in the same space, and its impact on human behaviors often seems unconscious [15], have not been adequately explored even though it is also important to the understanding of pro-environmental behaviors, particularly from the perspective of social psychology. Therefore, this study seeks to address this gap by adapting the theory of planned behavior model to investigate social norms (SNs), which will incorporate subjective norms, injunctive norms and descriptive norms. This contributes to the on-going refinement of the theory of planned behavior model.

On the other hand, the value-belief-norm theory (VBN) is useful for predicting pro-environmental behaviors through the examination of various psychological factors that are likely to encourage changes in individuals' behaviors. This theory holds that personal moral motives such as personal values, beliefs, and norms can encourage an individual to be more actively protecting the environment and therefore exhibit positive pro-environmental behaviors [1]. The value-belief-norm theory of environmentalism is a conceptual framework that has been developed and tested by several empirical studies [16,17] to explain the relevant dimensions and variances of environmentally significant individual behavior. For example, Stern et al. [17] indicate that values, beliefs, attitudes, and norms have strong relations with the behavioral indicators that support environmental movement. Further in line with the value-belief-norm theory, Eriksson et al. [18] suggest that personal norms and beliefs are positively related to pro-environmental orientation and willingness to reduce car usage. Another study by Jansson et al. [19] also indicates that values, beliefs and personal norms are positively associated with the early adoption of a high involvement eco-innovation such as the alternative fuel vehicle. However, the value-belief-norm theory focuses mainly on values and personal (moral) norms with a prediction in all reasonably foreseeable circumstances on personal values, but lesser effects on social norms from an externalized sense of obligation. Thus, the propose inclusion of the social norms component in this study seeks to provide an extended understanding of the value-belief-norm theory from both external influences and internal effects.

Empirical analysis of the literature suggests that while studies [2,16] have been conducted, mainly in Western countries (such as countries in Europe as well as the United States), to explore the impact of beliefs, attitudes and subjective norms on pro-environmental behavior, but there is limited evidence of such investigation from an Asia perspective. Such an understanding is important since there has been significant economic growth in Asia in recent years that resulted in increasing environmental problems

(e.g., garbage issues) which prompted global concerns. This study provides further insights into the scarce understanding of pro-environmental behaviors in the little-known Asia context and seeks to offer evidence to complement previous studies [16,20] that attempt to compare environmental related issues between Asian and Western countries. Some of these limited studies about pro-environmental behavior from an Asian perspective include, for example, Aoyagi-Usui et al. [20] indicating that environmental values are linked with both traditional and altruistic values in Japan, Bangkok, and Manila. In a study by Zheng [21], findings suggest that cultivation of environmental consciousness is an important factor in evoking people's pro-environmental behaviors in Beijing, Seoul, Taipei and Tokyo. Another study by Harris [22] reveals that people in China are unlikely to act to protect the environment unless doing so is necessary to protect their own interests or those of their loved ones. Hori et al. [23] also find that global warming consciousness, environmental behavior, and social interaction have significant effect on energy-saving behavior in Dalian, Chongqing, Fukuoka, Bangkok, and Ho Chi Minh.

Therefore, this study aims to fill the identified gaps in the extant literature by building on Ajzen's theory of planned behavior [7] and the value-belief-norm theory by Stern et al. [17], to explore specifically the influence of normative beliefs, attitudes, and social norms on pro-environmental behavioral intentions towards the usage of disposal tableware. This paper will begin by reviewing the relevant literature and then discusses the methodology including the data collection techniques used in this study. Next the analysis of data is described and the findings presented. These will be followed by the conclusions drawn from the research together with the implications and suggestions for future research on the role of waste reduction in the social construction.

1.1. Normative Beliefs

Normative beliefs refer to beliefs of an individual that are accepted by specific people or groups and dictate whether behaving in a particular fashion is appropriate [24]. Fishbein and Ajzen [6,14] propose the theory of reasoned action and first used the term "normative belief" as antecedent variables of norms. Bicchieri [25] also states that "Only the joint presence of a conditional preference for conformity and the belief that other people will conform will produce an agreement between normative beliefs and behavior". Ajzen [24] discusses behavioral, normative, and control beliefs in the theory of planned behavior, which are antecedent variables of attitudes, subjective norm, and perceived behavioral control respectively. The value-belief-norm theory and other empirical studies [17,26] have revealed that beliefs, and norms are related through a continuous process of causality. In addition, these empirical studies also indicate that normative beliefs affect subjective norms, attitudes, and behavioral intentions [6]. Ajzen and Fishbein [14] (p. 2) explain that "While a social norm is usually meant to refer to a rather broad range of permissible, but not necessarily required behaviors, normative belief refers to a specific behavioral act the performance of which is expected or desired under the given circumstances". In examining the relationships between social norms and behaviors, Lapinski and Rimal [27] conclude that findings of the effects of social norms (which include subjective norms, injunctive norms, and descriptive norms) on behavior are mixed in normative influences. They confirmed that norms are also "dynamic phenomena and individuals, acting on either self-interest or altruistic motives, continuously alter the normative contours" in beliefs [28]. Thus, the following hypotheses are formulated to be investigated in this study.

Hypothesis 1. *Visitors' normative beliefs on using reusable tableware have a positive influence on their social norms regarding the use of reusable tableware.*

Hypothesis 2. *Visitors' normative beliefs on using reusable tableware have a positive influence on their attitudes regarding the use of reusable tableware.*

Hypothesis 3. *Visitors' normative beliefs on using reusable tableware have a positive influence on their behavioral intention to use reusable tableware during their next visit.*

1.2. Attitudes

Blackwell et al. [29] define attitudes as favorable or unfavorable cognitive evaluations, emotional experiences, or behavioral tendencies that people constantly hold for certain situations or ideas. Modern psychologists believe that attitude is a type of inherent psychological property that comprises cognitive, affective, and conative tendencies that exhibits consistence and persistence actions [30]. In the field of social psychology, studies on the influence of attitudes on behavior have shown that educationalists believe that in a behavioral change system, if people obtain relevant knowledge that is helpful in improving the environment, they may gain further environmental awareness and a positive attitude towards the environment, and therefore exhibit a greater level of pro-environmental behavior [31]. Studies [32,33] reveal a positive correlation between environmental attitudes and pro-environmental behavior. According to Gatersleben et al. [34], attitude has a significant influence on pro-environmental behavior, which subsequently help reduce energy consumption in Dutch households. However, some studies [35,36] suggest that specific environmental behaviors could not be predicted on the basis of environmental attitudes. The findings of some studies [37,38] on predictions of recycling behavior suggest that researchers should investigate peoples' attitudes towards recycling behavior rather than their attitudes towards the environment in general.

According to the theory of planned behavior model, attitudes are the judgments that people make about the behavior they like or dislike. The more positive a person's attitude towards a behavior, the greater the behavioral intention a person will have [8]. This suggests that positive attitudes towards a specific pro-environmental behavior could positively influence the intention to display pro-environmental behavior. Based on the above, a hypothesis on attitudes affect behavioral intentions is developed for this study as follow:

Hypothesis 4. *A positive attitude towards the use of reusable tableware significantly affects visitors' behavioral intention to use reusable tableware.*

1.3. Social Norms

From the perspective of social psychology, social influence refers to the influence of external social factors on individual behaviors, and could be categorized into: (1) normative social influence; and (2) informational social influence [39]. Ravis and Sheeran [40] have used the terms "injunctive norm" and "descriptive norm" to represent normative social influence, and informational social influence respectively. According to the definition of subjective norm (one of the social norms) in the theory of planned behavior, people engage in various types of specific behavior when they are under pressure to meet the requirement of normative social influence, which is also known as normative conformity. Thus, "subjective norm" in the theory of planned behavior and "normative social influence" in social psychology share a similar meaning.

Cialdini et al. [41] suggest that the concept of norms also include the constructs of "behavior supported by groups" and "how groups themselves behave". In other words, two concepts of "should do" and "how to do" could be considered, rather than simply "norms" as a single concept. In norms, descriptive norms are others' practices that people follow when they are not familiar with particular situations or ideas. Thus, normative values are shared understandings of actions that are obligatory, permitted, or forbidden [42]. As such, people make judgment on whether a behavior is typical, normal, effective, adaptive, or appropriate by observing the specific behavior displayed by people around them. Furthermore, Bicchieri [25] proposes that social norms should be understood as types of social interaction behaviors, and such behaviors enable people to understand what is acceptable in society or groups in a system of norms.

Although previous studies [43,44] have widely discussed the positive correlation between norms and behavioral intentions in pro-environmental behavior contexts, a study by White et al. [45] reveal otherwise where the correlation between social norms and behavioral intentions is regarded as minor.

Hence, the following hypothesis on social norms affect behavioral intentions is formulated for this study to further investigate the relationship.

Hypothesis 5. *Visitors' social norms positively and significantly affect their behavioral intention to use reusable tableware.*

1.4. Research Framework

Based on the literature reviewed, a research framework has been proposed for this study, as shown in Figure 1. Particularly, this research will seek to measure the following and in the context of using reusable tableware by theme park visitors: (1) the influence of normative belief on social norms (H1), attitudes (H2), and behavioral intentions (H3); (2) the impact of attitude towards behavioral intentions (H4); and (3) the effects of social norms on behavioral intentions (H5).

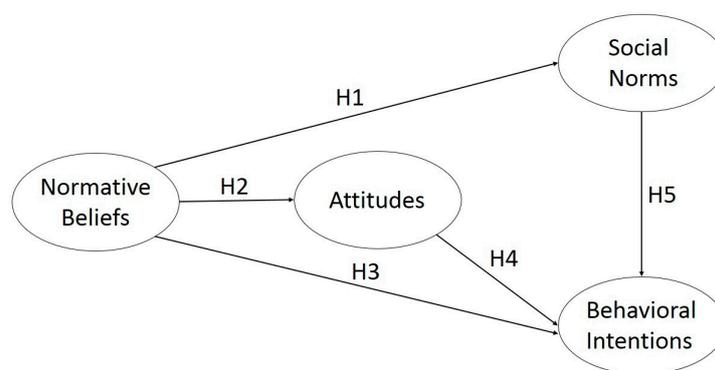


Figure 1. The research framework.

This framework intends to explain that the behavioral intentions of using reusable tableware are influenced by social norms (external factors), and attitudes (internal factors), whereas normative beliefs are regarded as the antecedents of social norms, attitudes, and behavioral intentions.

2. Materials and Methods

The photographs shown in Figure 2 have been presented in the questionnaires, so that there is a clear explanation about the domain (“tableware”) of the study. The questionnaires have been referenced from the concepts of Ajzen’s theory of planned behavior and the value–belief–norm theory by Stern [1]. We used the content validity of the questionnaire to compromise the degree that items reflecting any of the four facets of the domain (e.g., items on the magnitude of normative beliefs, social norms, attitudes, and behavioral intentions). We made reference to prior studies related to normative beliefs, social norms, attitudes, and behavioral intentions to explore the causal relationships [6,46]. However, the questionnaire content (measures) has been rearranged so that they are well blended into the four key domain areas of normative beliefs, social norms, attitudes, and behavioral intentions (see Appendix A).



Figure 2. (Left) Consumers are encouraged to adopt reusable tableware, such as stainless-steel chopsticks, forks, and spoons used by the faculties and students at National Taiwan Normal University (NTNU) while going outing to eat. Copyright was authorized by National Taiwan Normal University (NTNU). (Right) Disposable tableware can be made of plastic, plastic-coated paper, and woody materials: such as chopsticks, forks, spoons, cups, plates, bowls, trays, and food containers. Photographed by Wei-Ta Fang.

2.1. Survey Method

This study was carried out at Leofoo Village Theme Park in the Hsinchu County of Taiwan. Accordingly, Leofoo Village Theme Park is one of the most frequently visited leisure destinations by local Taiwanese and had consistently attracted a significant number of visitors over the years. This study had adopted the face-to-face questionnaire survey approach in which visitors to the Leofoo Village Theme Park were selected to complete the questionnaire. A non-probability convenience sampling technique was adopted at the theme park by interviewing visitors at three dining sites during 12:00–13:00 and 17:30–18:30 for seven consecutive days. To minimize potential selection biasness in the convenience sampling technique used in this study, all visitors who were at the three dining sites during the aforementioned periods were approached and requested to complete the questionnaire. To be eligible for the questionnaire study, screening questions were asked to determine participants were at least 16 years old and a local Taiwanese living in Taiwan. All valid participants were briefed on their questionnaires with self-reports without offering any incentives. Assurances were provided to participants who require any clarifications to the completion of the questionnaire.

A total of 410 questionnaires were distributed, of which 391 valid responses were obtained that represented a return rate of 95.4%. The questionnaire consisted of four key sections (including a demographic section) and several items aimed at investigating the research hypotheses developed for this study. The questionnaire used a 5-point Likert scale (1 = strongly disagree, 3 = neutral, 5 = strongly agree) to measure the items on the key dimensions (i.e., attitudes, social norms, behavioral intentions, and normative beliefs as shown in Appendix A) as outlined in the research framework. The National Taiwan Normal University Research Ethics Committee concluded that our study does not fall within the scope of the Human Subjects Research Act. They approved the study protocol (201707HS001) and agreed with active informed consent by the participants with the option to opt out of the study.

2.2. Data Analysis

In this study, SPSS 22 and LISREL 8.7 were used to analyze the data collected from the questionnaires and hypotheses were also tested on the dimensions as presented in the measurement hypothesis model. The conceptual foundation, development, construct validity and reliability, and psychometric qualities were examined through confirmatory factor analysis (CFA), which is a form

of structural equation modeling (SEM) that used to verify the overall and inherent goodness of fit of the research framework. The method of maximum likelihood estimation was used to estimate model parameters. In addition, the overall goodness-of-fit test for the model was conducted using various fit indices as the bases for determination.

2.3. Structural Equation Modeling (SEM)

SEM, which comprises advanced statistical procedures that are increasingly applied for multivariate analysis, was employed to analyze and validate the scales used in this study. Its popularity is attributable to its confirmatory (as opposed to exploratory) nature and requires the researcher to possess an explicit model. SEM explicitly models observed as well as latent variables (i.e., the items and the concepts they are measuring) and can further model and correct measurement error, thus reducing inaccuracies. Finally, SEM enables analyzing a complete multivariate model including direct and indirect effects [47,48].

2.4. Validity and Reliability Analysis

2.4.1. Content Validity

In our study, the questionnaire has been validated by a panel of judges who are professors in the field of environmental education and tourism education in Asian countries. Five professors, selected by their academic reputation, knowledge, as well as their familiarity with the fields, have been invited in the panel of judges who have been detected to be validated to examine the research questionnaire.

2.4.2. Composite Reliability (CR), and Average Variance Extracted (AVE)

Convergent validity is determined to be the degree of confidence we have measured by their indicators. According to Fornell and Larcker [49], convergent validity was assessed by standardized factor loading, Composite Reliability, and Average Variance Extracted [49]. The Composite Reliability value in our SEM Output is t-statistics value to be examined [49]. The Composite Reliability is there to check how well a construct factor is measured in the model. We detected the reports from convergent validity assessed from Composite Reliability, and Average Variance Extracted as follows: the Composite Reliability value of the normative beliefs, social norms, attitudes, and behavioral intentions are 0.58, 0.76, 0.74, and 0.85, respectively. Three of the Composite Reliabilities exceed the recommended threshold of 0.60 suggested by Bagozzi and Yi [50] (p. 82), and one of the Composite Reliabilities exceeds the recommended threshold of 0.50 suggested by Raines-Eudy [51] (p. 126), which is the acceptable CR level. According to Raines-Eudy [51] (p. 128), an Average Variance Extracted value of greater than 0.50 indicates that the validity of both the construct and the individual variables is high. The Average Variance Extracted values derived from normative beliefs, social norms, attitudes, and behavioral intentions are 0.41, 0.40, 0.59, and 0.66, respectively. According to Hair et al. [52] (p. 808), all values of standardized factor loadings should exceed the values of 0.50, and the Average Variance Extracted values estimate should exceed $(0.5)^2 = 0.25$. Subsequently, we can confirm that the items measure in their construct and convergent validity of a model is satisfied.

2.4.3. Cronbach's α

We also conducted Cronbach's α reliability analysis to determine the level of consistency between each variable (i.e., item) and the measurement dimensions used in this study. Accordingly, Cronbach's α reliability analysis should be at least 0.50, preferably 0.70, to ensure the consistency and stability of the test results. When the α value is greater than 0.70, the reliability indicates sufficient reliability. In this study, SPSS 22 was used to conduct the reliability analysis of the questionnaire survey. The analytical results revealed high reliability for social norms, attitudes, and behavioral intentions, whereas normative beliefs attained a moderate level of reliability. A summary of the results of Cronbach's α reliability analysis is shown in Table 1.

Table 1. Questionnaire questions and reliability analysis.

Model Dimension	Number of Questions	Cronbach's α
Normative beliefs	2	0.609
Social norms	5	0.756
Attitudes	2	0.731
Behavioral intentions	3	0.759

2.5. Confirmatory Factor Analysis (CFA)

In structural equation modeling, Confirmatory Factor Analysis has been used to assess construct validity with clearly specified conceptual boundaries [53]. Ghadi et al. [54] suggest that “(t)he validation emphasizes a logical analysis and tests the relationships predicated based on theoretical considerations”. Therefore, we focused on the selections of essential necessities in a combined model from Ajzen’s theory of planned behavior and the value–belief–norm theory by Stern et al., to investigate the effects of normative beliefs, social norms, and attitudes on pro-environmental behavior in Figure 3. We used Confirmatory Factor Analysis to evaluate and refine the hypothesis model for the pro-environmental behavior of visitors to theme parks in Taiwan. The analysis explicitly tested a hypothesized measurement model (as opposed to an exploratory approach), accounts for sources of common measurement and method error that are inherent in survey research, and provides empirical justification. In other words, Confirmatory Factor Analysis was mainly applied to determine the goodness of fit between measurement items in the scale.

In this study, the model’s overall goodness of fit to the data was good. The analytical results showed that the Goodness-of-fit index (GFI) and the Comparative index (CFI) were 0.924 and 0.951 respectively, which were above the acceptable value of 0.90. In addition, the Standard Root Mean Square (SRMR) and the Root Mean-Square Error of Approximation (RMSEA) were recorded at 0.064 and 0.086, respectively, demonstrating acceptable level on the goodness of fit of the model. Table 2 provides a brief summary of the results.

Table 2. The different indices and determination results of confirmatory factor analysis (CFA).

Index	Hypothesis Model Values	Standard and Determination Result	Citation
Goodness-of-fit index (GFI)	0.924	>0.90, acceptable	Hu and Bentler [55]
Comparative index (CFI)	0.951	>0.90, acceptable	Hu and Bentler [55] Byrne [56]
Non-normed fit index (NNFI)	0.934	>0.90, acceptable	Hu and Bentler [55]
Standardized root mean square residual (SRMR)	0.064	<0.08, acceptable	Hu and Bentler [55]
Root Mean-Square Error of Approximation (RMSEA)	0.086	Near 0.08, fair	McDonald and Ho [57] Browne and Cudeck [58]

In this study, SPSS 22 was used to conduct the reliability analysis of the questionnaire survey. The summary results of Cronbach’s α reliability analysis, correlation coefficients, mean, and standard deviation are shown in Tables 1 and 5, respectively. The analytical results revealed high reliability for social norms, attitudes, and behavioral intentions, whereas normative beliefs attained a moderate level of reliability.

3. Results

3.1. Analysis of Respondent Backgrounds

We investigated visiting consumer behaviors by self-reports and by our personal observations. Only 20% (78 of the 391 respondents) of the visitors represent a significant contribution to reducing

large amount of playground disposal tableware waste generated in our study. They have observed to be carried reusable tableware, such as chopsticks and/or forks and spoons while dining in the theme park (the pro-environmental behaviors as we set to be acknowledged as a reference example in the left side in Figure 2, but it is not necessary to be set in the same style of tableware/dinnerware toolkits as we provided). Among the 391 respondents who completed the valid questionnaires, there were 263 (67.3%) female and the remaining 128 (32.7%) being male. In terms of marital status, majority (68%) of the respondents were single with the others being married with children (29.2%) and without children (2.8%). Respondents were mainly (53.5%) between 21 to 40 years old, and about more than half (55%) had attained an education qualification of a Bachelor's or higher degrees. Respondents were predominantly residing in northern Taiwan (40.2%) and this was followed by central Taiwan (32.7%), southern Taiwan (18.9%), eastern Taiwan (5.6%), and offshore island (2.6%).

We further examined the correlation through the independent-sample *t* test, based on gender, and one-way ANOVA between other demographic variables associated with normative belief, social norms, attitudes, and behavioral intentions. Results suggested no significant differences between females and males in terms of their normative beliefs ($df = 390$, two-tailed, $t = -0.56$, $p = 0.57$), social norms ($df = 390$, two-tailed, $t = -1.73$, $p = 0.09$), attitudes ($df = 390$, two-tailed, $t = -0.83$, $p = 0.41$), and behavioral intentions ($df = 390$, two-tailed, $t = 0.46$, $p = 0.65$) (see Table 3). However, there was a significant difference between visitors' marital status (i.e., single, married with children, married without children) in terms of their normative belief ($F_{0.05}(2, 388)$, $F = 4.615$, $p = 0.01$), social norms ($F_{0.05}(2, 388)$, $F = 5.2$, $p = 0.006$), and behavioral intentions ($F_{0.05}(2, 388)$, $F = 8.385$, $p = 0.000$).

With regards to age group, there was also a significant difference between visitors on their normative belief ($F_{0.05}(3, 387)$, $F = 4.198$, $p = 0.006$), social norms ($F_{0.05}(3, 387)$, $F = 3.236$, $p = 0.022$), and behavioral intentions ($F_{0.05}(3, 387)$, $F = 5.465$, $p = 0.001$). Visitors between 41 to 60 years old had a higher mean score than other age groups across the four items (normative belief, social norms, attitudes, and behavioral intentions). While the results did not reveal any significant differences in the education qualification and household income categories, a significant difference existed between visitors' place of residence on their normative belief ($F_{0.05}(4, 386)$, $F = 6.128$, $p = 0.000$) and behavioral intentions ($F_{0.05}(4, 386)$, $F = 4.827$, $p = 0.001$). Table 4 presents a summary of the demographic results regarding normative belief, social norms, attitudes, and behavioral intentions.

Table 3. Descriptive statistics related to the gender question for normative beliefs, social norms, attitudes, and behavioral intentions items ($n = 391$).

Items	Categories	Frequency	Percent	Normative Beliefs				Social Norms				Attitudes				Behavioral Intentions			
				Mean	SD	<i>t</i>	<i>p</i>	Mean	SD	<i>t</i>	<i>p</i>	Mean	SD	<i>t</i>	<i>p</i>	Mean	SD	<i>t</i>	<i>p</i>
Gender	Male	128	32.7	4.30	0.67	−0.56	0.57	3.88	0.74	−1.73	0.09	3.58	0.91	−0.83	0.41	3.78	0.78	0.46	0.65
	Female	263	67.3	4.35	0.69			4.00	0.61			3.66	0.92			3.74	0.73		

Table 4. Descriptive statistics related to the demographic questions for normative beliefs, social norms, attitudes, and behavioral intentions items ($n = 391$).

Items	Categories	Frequency	Percent	Normative Beliefs				Social Norms				Attitudes				Behavioral Intentions			
				Mean	SD	<i>F</i>	<i>p</i>	Mean	SD	<i>F</i>	<i>p</i>	Mean	SD	<i>F</i>	<i>p</i>	Mean	SD	<i>F</i>	<i>p</i>
Marital status	Single	266	68.0	4.28	0.68	4.615	0.01	3.89	0.66	5.2	0.006	3.56	0.89	2.983	0.052	3.66	0.73	8.385	0.001
	Married with children	114	29.2	4.48	0.62			4.09	0.63			3.79	0.97			3.99	0.71		
	Married without children	11	2.8	4.04	1.02			4.31	0.61			3.86	0.81			3.64	1.03		
Age	20 or younger	131	33.5	4.26	0.66	4.198	0.006	3.88	0.65	3.236	0.022	3.52	1.00	1.877	0.133	3.71	0.81	5.465	0.001
	21–40	209	53.5	4.31	0.72			3.96	0.64			3.64	0.82			3.69	0.69		
	41–60	40	10.2	4.68	0.45			4.24	0.75			3.90	0.96			4.19	0.69		
	61 or older	11	2.8	4.45	0.52			4.07	0.50			3.77	1.17			3.93	0.82		
Highest education qualification attained	Junior high school or lower	46	11.8	4.23	0.61	1.119	0.341	4.01	0.56	0.506	0.679	3.49	1.17	1.154	0.327	4.02	0.75	2.646	0.049
	High school	101	25.8	4.35	0.78			3.90	0.71			3.76	0.90			3.76	0.75		
	College	215	55.0	4.32	0.66			3.98	0.64			3.60	0.86			3.69	0.74		
	Master’s degree or higher	29	7.4	4.52	0.56			4.01	0.80			3.66	0.91			3.82	0.69		
Residence	Eastern Taiwan	22	5.6	3.66	1.05	6.128	0.000	3.70	0.63	2.240	0.064	3.27	0.91	2.135	0.076	3.39	0.88	4.827	0.001
	Central Taiwan	128	32.7	4.38	0.64			4.06	0.61			3.78	0.99			3.94	0.73		
	Southern Taiwan	74	18.9	4.35	0.57			3.87	0.69			3.53	0.84			3.55	0.71		
	Northern Taiwan	157	40.2	4.39	0.66			3.98	0.68			3.60	0.87			3.76	0.73		
	Taiwan’s offshore islands	10	2.6	4.25	0.54			3.74	0.47			3.75	0.79			3.83	0.62		
Annual household income (NT\$) ¹	Less than 459,999	93	23.8	4.26	0.72	1.151	0.332	3.87	0.56	0.652	0.626	3.48	0.94	2.054	0.086	3.70	0.70	1.290	0.273
	460,000–759,999	106	27.1	4.30	0.70			3.95	0.65			3.54	0.84			3.66	0.74		
	760,000–1,009,999	86	22.0	4.44	0.60			3.98	0.77			3.83	0.87			3.79	0.75		
	1,010,000–1,309,999	58	14.8	4.41	0.70			4.00	0.62			3.74	0.92			3.86	0.76		
	Greater than 1,310,000	48	12.3	4.26	0.68			4.06	0.72			3.68	1.02			3.89	0.84		

¹ The monetary unit is NT dollar. In 2017, one US dollar is equivalent to 30.63 NT dollars, 1 USD = NT 30.63, and admission tickets to Lefoo Village Theme Park were priced at NT \$999 each, equivalent to \$32.61.

3.2. Test and Analysis of PEB Intentions Using SEM

The SEM software LISREL8.7 was used to conduct SEM hypothesis testing and outcome analysis. Regarding measurement model of SEM, the results of the SEM analysis on correlation coefficients, means, and standard deviations are presented in Table 5.

If a variable's p value of a path coefficient, such as a t test result, passed the p value test (i.e., $p < 0.001$), the proposed hypothesis would be considered as accepted (Figure 3). In addition, the results of the SEM analysis on the effects of the latent variable in path analysis are presented in Table 6.

As shown in Figure 3, the results indicated that the path coefficient between normative beliefs and social norms is 0.70, reaching the significant level. Therefore, H1 is supported, whereby visitors' normative beliefs on using reusable tableware have a direct positive influence on their social norms regarding the use of reusable tableware. Regarding H2, the findings revealed that the path coefficient is significant between normative beliefs and attitudes at 0.54. Thus, visitors' normative beliefs on using reusable tableware have a direct positive influence on their attitudes towards the use of reusable tableware.

The path coefficient between normative beliefs and behavioral intentions is 0.06 and has not achieved the significance level. Hence, H3 is not supported with the indication that visitors' normative beliefs on the use of reusable tableware do not have a direct influence on their behavioral intention towards the use of reusable tableware. In relation to H4, the path coefficient between attitudes and behavioral intentions is loaded at a significant level of 0.35. Therefore, this hypothesized relationship is supported through which a positive attitude towards the use of reusable tableware can have a direct and significant influence on visitors' behavioral intention to use reusable tableware.

The results also highlighted a significant level of path coefficient between social norms and behavioral intentions at 0.40, thus revealing the support of H5 with visitors' social norms having a direct positive influence on their behavioral intention to use reusable tableware.

Table 5. Correlation coefficient, mean, standard deviation of observed variables in the model.

Dimension	NBs	SNs	ATs	BIs	Mean	Standard Deviation
NBs	1				4.3325	0.68083
SNs	0.391 **	1			3.9637	0.65977
ATs	0.317 **	0.288 **	1		3.6330	0.91439
BIs	0.324 **	0.399 **	0.526 **	1	3.7564	0.74826

Note: NBs = normative beliefs; SNs = social norms; ATs = attitudes; BIs = behavioral intentions. ** When $p < 0.01$ (two-tailed), it represents the significance level.

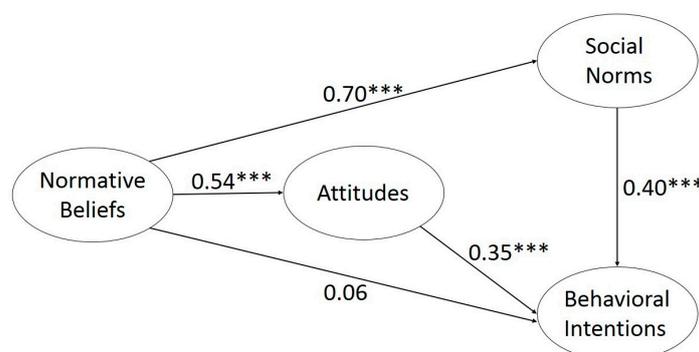


Figure 3. The path coefficients of normative beliefs (NBs), attitudes (ATs), social norms (SNs), and pro-environmental behavioral intentions (BIs) in model. *** $p < 0.001$.

Table 6. The effects of the latent variable in path analysis.

Independent Variables	Dependent Variables: Endogenous Variables					
	BIs		SNs		ATs	
	Effect	t Value	Effect	t Value	Effect	t Value
<i>Exogenous variable NBs</i>						
Direct effects	—	—	0.7	9.55 ***	0.54	7.97 ***
Indirect effects	0.467	5.16 ***	—	—	—	—
Total effects	0.467	5.16 ***	0.7	9.55 ***	0.54	7.97 ***
<i>Endogenous variables SNs</i>						
Direct effects	0.40	4.18 ***	—	—	—	—
Indirect effects	—	—	—	—	—	—
Total effects	0.40	4.18 ***	—	—	—	—
<i>Endogenous variables ATs</i>						
Direct effects	0.35	4.41 ***	—	—	—	—
Indirect effects	—	—	—	—	—	—
Total effects	0.35	4.41 ***	—	—	—	—

Notes: *t* value > 1.96, * *p* < 0.05; *t* value > 2.58, ** *p* < 0.01; *t* value > 3.29, *** *p* < 0.001.

4. Discussion and Implication

In this research, we have investigated the influence of normative beliefs, social norms, and attitudes towards behavioral intentions, specifically in relation to the reusable tableware at a theme park in Taiwan. This study extended the work by Ajzen's theory of planned behavior and also on the value–belief–norm theory by Stern et al. [7,17], from an Asian perspective (which is lacking in the literature) in which the region has sustained considerable economic growth in the past decade but at the same time this economic growth has also contributed to the increasing environmental problems that they are facing nowadays.

We have achieved consistent results and tested them for validity, to check that the questionnaire measures what it claims to measure. The results of the CFA revealed that the overall goodness of fit for the hypothesis model is excellent, indicating that the proposed framework (as shown in Figure 3) for theme park visitors using reusable tableware is acceptable. The findings from the SEM analysis showed strong support and had accepted four of the five hypotheses (i.e., H1, H2, H4 and H5), indicating significant positive direct relationship.

Results suggested that social norms had a stronger influence on behavioral intentions than attitudes on behavioral intentions with the path coefficient being 0.4 and 0.35 respectively. This implied that people were more likely to display and engage in the pro-environmental behavior of using reusable tableware when they felt under pressure to conform to the expectation and requirement of normative social influence. While this outcome aligns with some prior studies, it also offers a different view, and this might be explained by the differing cultural context (i.e., eastern versus western). Specifically, Confucianism, which is an East Asian ethical and philosophical system that emphasizes social values, has strong culture roots in countries such as China, Japan, Korea, Singapore and Taiwan (which is the key focus of this study). This strong emphasis on social values forms the basis for a sense of belonging to the group, which could have explained the results emphasizing a greater influence of social norms on behavioral intentions. This finding supported the model by Schütte and Ciarlante in Maslow's Hierarchy of Needs in Asia [59]. They developed an Asian equivalent model beyond the original top of the pyramid's shape in Maslow's, "personal self-actualization", and called it as "social contexts" (i.e., status, admiration, and affiliation) to regulate Asian behaviors in "Act" in their daily lives (p. 93). Therefore, we enforced one of the Asian empirical and normative expectations to be formed their motive actions in the model of "social norms" (see the definitions of Rimal and Lapinski, and see also Bicchieri, p. 41) [27,28]. This diagnostic process of identifying collective model in Asians have been discovered from our observation in a collective pattern of their behaviors. Therefore, we refer to Maslow's Hierarchy of Needs in Asia to present a synthesized variable of "social norms" without

separating variables reflecting different types of norms, i.e., subjective norm in theory of planned behavior, to re-analyze the data.

However, this “Act” of pro-environmental behavior might have only occurred because of the pressure to conform to this specific behavior displayed by other people around the theme park, but not necessarily a true reflection of the action to be taken when such a pressure is non-existent (e.g., in situations when no others are around). As such, it is important to have continual efforts towards environmental education in order to equip people with relevant knowledge that could help enhance their awareness and gaining a more positive attitude towards the environment. Therefore, social norms may be regarded as an external force influencing pro-environmental behavioral intentions whereas attitudes are needed as an internal source to shape pro-environmental behavioral intentions, and these two dimensions have a critical role to play in achieving sustainable pro-environmental behavior.

On the other hand, H3 is rejected since the causal relationship between normative beliefs and behavioral intentions is relatively weak with the coefficient being 0.06. This indicated that the visitors’ normative beliefs on using reusable tableware had minimal influence on their behavioral intention to use reusable tableware during their next visit. As shown in Figure 3, although normative beliefs had no direct influence on behavioral intentions, but it had positive direct relationships with social norms (coefficient 0.70) and attitudes (coefficient 0.54) which in turn had an impact on behavioral intentions. Thus, social norms and attitudes could be considered as mediators between normative beliefs and pro-environmental behavioral intentions. The absence of this relationship between normative beliefs and behavioral intentions could be explained through the possible lack of one’s desire to conform to the pro-environmental behavior and/or the lack of belief in other people who will also exhibit pro-environmental behavior. From this perspective, the emphasis on the development of psychological internal factors and external factors is essential and can potentially help enhance theme park visitors’ behavioral intentions to use reusable tableware.

4.1. Study Implications

The findings from this study have several implications. Firstly, approximately 20% (78 of the 391 respondents) of the participants display pro-environmental behaviors when detected in our observations as well as examined in their self-report questionnaire. There is serious concern on the effects of social environmental education on people’s social influences for the other 80% of the non-pro-environmental behaviors’ participants. Therefore, we recommend that environmental education programs (formal and informal) at various levels (e.g., community, school) need to be targeting independent of knowledge so that people can better understand the relationship between their behavior and the environment. This helps towards attaining a more sustainable pro-environmental behavior of becoming a socially responsible citizen and not just conforming because of the social group pressure.

Next, while the Environmental Protection Administration in Taiwan has enforced a restriction on the use of disposable tableware at certain types of restaurant since 2002, it is necessary to review the effectiveness of this policy. The review of 80% of the non-pro-environmental behaviors’ observation should not only emphasize on the aspect of enforcing relevant environmental protection policies but also the effects on pro-environmental behavior and the relevant initiatives.

Thirdly, promotional campaigns will be necessary to further increase people’s awareness about the types of pro-environmental behavior, and information should also be included on how they can be implemented. Through these campaigns, people will be appropriately equipped with the knowledge that enables them to adequately implement their pro-environmental behavior, therefore contributing to achieving a greener environment.

4.2. Study Limitations

This study has four key limitations. The first is the research focused mainly on internal and external factors in the visitors’ pro-environmental behavioral intentions towards using reusable

tableware, including attitudes and social norms (i.e., injunctive, descriptive, and subjective norms). Furthermore, the questionnaire had adopted the social norm propositions to include injunctive norms, descriptive norms, and subjective norms, and there were no distinctions between them. Social cognition variables, such as social norms, in the theory of planned behavior predict behavior more strongly when the behavior is under volitional control. The different types of norms are summarized in Table 7.

Table 7. Types of norms.

Norms	Norm Levels	Types of Norms	Definition
Social	External	Injunctive Norms	Display behaviors others approve. Compliance is encouraged and violations will be punished [60–62].
	External	Subjective Norms	Behaviors expected or supported by people around you, such as family, peers, and colleagues [61,62].
	External	Descriptive Norms	Respondents perceive the behaviors that most people are doing [60–62].
Personal	Internalized	Personal Norms	Self-expectations and feel obliged to do what morally right [60–62].

Next, this study was conducted in Taiwan, specifically in a theme park context with a limited number of samples, investigating the use of reusable tableware as a form of pro-environmental behavior. Therefore, the findings cannot be generalized but instead provide further insights from an Asian perspective about the influence of normative beliefs, social norms and attitudes towards behavioral intentions and pro-environmental behavior. A more comprehensive sample is needed to for such a generalization.

Thirdly, due to the apparent and potential limitations of self-reporting data, evidence of validity on the findings can be limited. Although participation in this study is voluntary, self-report questionnaires rely on the honesty of the participants. In this study, participants might not have provided their honest answers to the questionnaire due to a variety of reasons (e.g., social pressure). Furthermore, participants might also have a varying degree of understanding or interpretation of particular questions, which could result in the provision of inaccurate responses. However, interviewers conducting the face-to-face questionnaire survey were available to participants who require any clarifications to completing the questionnaire.

Lastly, this study has inadequately operationalized the theory of planned behavior variables, perceived behavioral control. Only to some extent do our variables align with the principle of compatibility in theory of planned behavior and value–belief–norm theory. We assumed that, combining the two theories, especially selecting essential necessities from the theory of planned behavior and value–belief–norm theories, we would have successfully decomposed the antecedent variable and mediators in a refining model. However, perceived behavioral control (one of the key components of the theory of planned behavior) as indicated by Wubs et al. in South Africa and Tanzania [63], as well as values (one of the key components of the value–belief–norm theory) represented a beyond meaning with a non-causal relationship compared to social norms in our pioneering studies in Asia.

4.3. Areas for Future Research

In terms of future research, several areas are proposed. As part of the limitations mentioned above, this study has not differentiated among the various types of norms (i.e., injunctive norms, descriptive norms, subjective norms, and personal norms), and therefore lacks the detailed investigation about these norms. However, prior studies investigated the predictions about pro-environmental behavior based on moral or ethical elements have found that personal norms played a crucial role. Likewise, injunctive norms, descriptive norms, and subjective norms should also be explored separately in more detail. Thus, it is suggested that separate detailed studies on personal norms, injunctive norm,

descriptive norms, and subjective norms be conducted in the future to investigate the key variables influencing pro-environmental behavior.

Secondly, although environmentally friendly behavioral intentions were investigated in this study through a self-completed questionnaire survey, observation technique should be well used in similar pro-environmental behavior researches. The use of observation technique can further enhance the understanding of the pro-environmental behavior in which a more realistic and truthful behavior can be examined. Thirdly, other theories can be introduced for more advanced studies from “social contexts” (i.e., status, admiration, and affiliation) in Asian’s specific value. Beyond social influences, the self-determination theory also suggested that internal motivation from one-self will have a greater impact on positive outcomes (i.e., exhibiting pro-environmental behavior) than from external motivation since it generates a higher level of self-satisfaction and happiness [64]. Therefore, the role of waste reduction in the social construction of the Eastern society could be re-built from an innovative social model related to real solutions.

Lastly, studies conducted in the future can also focus on other types of pro-environmental behavior that visitors might exhibit, such as purchasing green goods (green consumerism), recycling, and staying in green hotels and restaurants [65]. This enables other variables affecting pro-environmental behavior and causal relationships to be identified so that a more comprehensive framework can be developed.

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

Appendix A

Questionnaire: Dimensions and items

Items on normative beliefs

1. I believe that the use of disposable tableware will affect the environment forever.
2. I believe that every visitor has a responsibility to use less disposable tableware.

Items on social norms

3. I am willing to follow the strategy that the government employed to limit the use of disposable tableware.
4. I would carry reusable tableware because those who travel with me already carry it.
5. I would decide to use reusable tableware because of the influence of my family.
6. I would decide to use reusable tableware because of other people’s criticism.
7. I would be more willing to use reusable tableware if I were rewarded by the theme park.

Items on attitudes

8. It is inconvenient to carry reusable tableware. (Opposite)
9. As far as I am concerned, it is not fashionable to carry reusable tableware. (Opposite)

Items on behavioral intentions

10. I will carry my own reusable tableware when I visit theme parks in the future.
11. I will carry my own reusable cup when I visit theme parks in the future.
12. I will carry my own reusable chopsticks when I visit theme parks in the future.

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