Environmental Communication as a Mediator in the Relationship between Environmental Concern and Attitude Towards Green Services in a Sequential Mediation Model: Evidences from Restaurant Industry

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Abstract

Tourism is a major economic activity of a nation but also contributes to about 5% of global emissions. Hospitality industry, a major arm of tourism industry, has initiated several measures for green sustainable practices. This research aims to understand the linkages between an altruistic mindset, environmental concern, environmental communication, green service attitude, and behavioural intentions through a sequential moderation model in the restaurant industry.

A literature review was done to understand the theoretical construct of the proposed model and extant research for last 30 years to develop the consumer behaviour model. A modified model of Theory of Planned Behaviour was chosen as the base theory and through a review of the extant literature, a hypothetical model was created. A covariance-based structural equation model (CB SEM) was created to test the strength of relationships across the variables. The findings indicate that consumer environmental concern do not directly lead to positive attitude towards green services until it is mediated by environmental communication. This finding will help the green restaurants to adequately design suitable communication strategies to increase consumer awareness, positive attitudes and pro-environmental behavioural intentions.

Keywords: Environmental Communication, Green Services, Theory of Planned Behaviour, Loyalty.

Introduction

The United Nations estimates that Tourism constitutes 5% Carbon Dioxide emissions globally, which would increase by 130% by 2035 (UNWTO, 2010). However, environment and tourism has to go hand in hand and the industry has to find a fine balance between sustainability and profitability (Moellar, Dolnicar, Leisch, 2011). In recent years, all the major constituents of the tourism industry including hospitality have taken several sustainability measures and have widely publicised them to create awareness among tourists. The changing customer awareness and preference for green lodging (Manganari, E.E.& Dimara, 2015) has made many hotels opt for eco-friendly measures but customer awareness is low for these measures (Rahman, I. & Reynolds, D., 2017). It is therefore imperative for the hospitality industry to communicate the several green measures they have undertaken to create trust among the customers (Yuriev et al, 2020). Third-party labels

and certifications also help create confidence among customers. Moreover, the UN Sustainable Development Goal on Decent Work & Economic Growth (Target indicator 8.9) also highlights the importance of implementing policies to promote sustainable tourism (UN 2030 Agenda, 2015).

Brand Loyalty is critical for business survival in a competitive world (Heskett,2002). Loyalty in marketing denotes exchanges as relationships that need to be developed, nurtured, and cultivated in contrast to

transactional exchanges (Gronroos, 2000). Brand loyalty is a complex construct (Oliver 1999) and a critical aspect of loyalty research is to understand the factors that contribute brand loyalty (Han, Kwortnik, & Wang, 2008; Lai, Griffin, & Babin, 2009). Loyalty has been researched by several scholars over the last few decades, and several antecedent variables that lead to consumer behavioural intentions have been identified. One of the important factors is trust (Arvola A et al, 2019; Srivastava M & Srivastava SK, 2019). The role of sustainability practices in creating customer trust and loyalty has been a more recent research area. There have been a few research initiatives linking sustainability practices and environmental communication to loyalty (Yusof, N. & Rahman, S. Iranmanesh, M, 2015; Gao et al, 2016, Panda et al. 2020). Environmental awareness of customers, altruism and green purchase intentions are important drivers of customer loyalty (Panda et al, 2020).

There is a growing interest to understand how consumers decision making processes are impacted on account of green/ sustainable products in various settings. However, studies on the role of provider initiated environmental communications is sparse.

This research aims to understand i) if the altruistic mindset of the consumer might affect mindset (environmental concerns), attitude towards green services, pro-environmental behavioural intentions of the consumers of restaurants about green practices, ii) the role of environmental communication in the aforementioned context.

In this paper we would be using certain standard terms repeatedly for which the definitions have been provided below.

Definitions of Constructs	Similar or Synonymous Constructs
Altruism is acting for the benefit of others without thinking of oneself (Schwartz, 1977)	Biospheric, Morality
Customer Environmental Concern can be defined as "general attitude toward environment that reflects the extent to which consumers are worried about threats to the environment" (Lee et al., 2014). Environmental concern can be looked upon as a "subset of morally tinged human concerns, rooted in universal values" (Stern et al, 1995).	Customer Sustainability Concern, Customer Green Concern
Attitude towards a behaviour is based on person's belief about the outcomes associated with the behaviour and the strength of the relationships. (Ajzen, 1985)	Green Service Attitude
Environmental communication is defined as: "the process of communicating environmental information to build acceptance, reliability, and partnerships, to raise awareness, and to use in decision making. The processes used and the content of environmental communication will vary with objectives and circumstances of the organization" (Daddi et al, 2011).	Sustainability Communication, Green Communication
Behavioural Intention has been defined as "an individual's willingness to perform (Ajzen, 1991) or not to perform a specific future behavior (Konerding U, 1999)."	

Literature Review

Theoretical Framework

The Theory of Planned Behavior (TPB) is a widely used theoretical framework that explains human behavior in a variety of contexts. TPB suggests that attitudes, subjective norms, and perceived behavioural control are three primary factors that predict and influence human behavioral intentions. Behavioral intentions which is precursor to actual behavior, is shaped by attitudes and subjective

norms (Madden et al 1992). Attitudes towards a behavior is shaped by several outcomes and individuals own experiences (Ajzen, 1991). Therefore, the formation of beliefs about the consequences leads to an attitude towards a specific behaviour. Another important parameter towards Behavioral Intentions is Subjective Norm which denotes certain perceived social pressure by individuals about performing or not performing a behavior.

Theory of planned behaviour has been widely used in green and eco friendly services context. One study of particular interest was to understand the relationship among factors like environmental knowledge, attitude and intentions in the case of sustainable products and services and was able to establish environmental knowledge affects attitude which is precursor to behaviour (Kumar et al, 2016). Antecedent variables have been used to extend TPB, especially motivation as an antecedent to attitude. In the hospitality and tourism sector, motivation is important in understanding attitude and intentions (Hsu & Huang, 2010).

Extant literature has linked TPB to altruism and sustainability in various studies. Altruism refers to the selfless concern for the well-being of others. Several studies have explored the relationship between TPB and altruistic behavior. Research shows that attitudes, subjective norms, and perceived behavioural control significantly predicted charitable giving intentions and behavior (Hamid & Cheng, 2020). Attitudes, subjective norms, and perceived behavioural control significantly predicted sustainable consumption intentions and behavior (De Pelsmacker et al., 2018). Attitudes, subjective norms, and perceived behavioural control significantly predicted pro-environmental behavior (Chen & Hung, 2021). There is ample evidence for the usefulness of TPB in understanding and promoting altruistic and sustainable behavior. Many studies have replaced the first order TPB variables with other factors or

have combined TPB with other similar models. For example, Han,2015; modified TPB by replacing beliefs with value-belief-norm theory (Stern, 2000; Yu & Yu, 2017).

TPB offers enough flexibility to use and discover other variables that significantly describe that behaviour (Ajzen, 1991). This allows researchers to extend the theoretical construct of TPB to introduce other variables and replace original variables with other variables to understand the behaviour better (Kumar et al., 2017a,b,c). The author proposes extending and modifying the TPB to understand how altruism impacts environmental concerns and green service perceptions to loyalty for green practices.

Framing of Hypotheses

Altruism is acting for the benefit of others without thinking of oneself (Schwartz, 1977). Customers with a high level of altruism are more environmentally conscious without thinking of their benefit (Nath et al., 2014; Yadav and Pathak, 2016). Customer Environmental Concern can be defined as "general attitude toward environment that reflects the extent to which consumers are worried about threats to the environment" (Lee et al., 2014). Environmental concern can be looked upon as a "subset of morally tinged human concerns, rooted in universal values" (Stern et al, 1995). In other words, environmental concern has its roots in altruistic mindset of a person. Empathy which is a form of altruistic behavior, influences environmentally responsible behaviour like reduced energy use and support for environmental protection policy (Bratt & Karp, 2011). Recent research also shows Altruistic behaviour promote pro environmental behaviour (Xu et al. 2021) and green patronage reasons (Tan et at 2020). Therefore, we propose the following Hypothesis.

H1: Altruism positively influences Customer Environmental Concerns

Numerous studies have been conducted to investigate the relationship between customer environmental concerns and green service attitudes. Attitude towards a behaviour is based on person's belief about the outcomes associated with the behaviour and the strength of the relationships. (Ajzen, 1985). Research revealed that customers with higher environmental concerns perceived green restaurant services more positively (Hsu et al, 2018). Similar studies across multiple service domain has established that customers with higher environmental concerns will have a more positive attitude on green services (Lee et al, 2017; Chiu et al, 2017; Wang et al, 2018; Singh et al, 2019). Recent research also supports that knowledge and environmental concerns impact the attitude of green services (Adetola et al. 2021; Wang et al. 2020; Sultana et al. 2022). Therefore we propose the following hypothesis.

H2: Customer Environmental Concern has a positive influence on Attitude towards Green Services.

Environmental communication is defined as: "the process of communicating environmental information to build acceptance, reliability, and partnerships, to raise awareness, and to use in decision making. The processes used and the content of environmental communication will vary with objectives and circumstances of the organization" (Daddi et al, 2011). Mandatory and voluntary environmental communication and disclosure leads to reputation (Kumar S, 2021). Service providers today are implementing green practices and communicating the same to their prospective and present customers. Customers can only appreciate the green practices if the service provider can communicate this effectively and assist the customer in developing a favourable perception (Prud'homme et al, 2013; Leaniz et al, 2015; Wang et al, 2018).Research has shown that consumer attitude towards provider green practices is influenced by provider environmental communication (Acompora et al, 2022). Therefore, we propose the following hypothesis.

H3: Provider Environmental Communication mediates the relationship between Customer Environmental Concern and Attitude towards Green Services.

The relationship between attitude and behavioural intentions is well established in research literature. Both Theory of Planned Behaviour (TPB) and Cognitive Dissonance Theory postulate that human beings are comfortable if their beliefs and behaviour are consistent. The theories suggest consumers with strong environmental mindsets tend to have pro-environmental behaviour (Lin et al, 2022) With relation to the hospitality industry, studies indicate positive attitudes towards food leads to intentions of purchase intentions (Cloe & Kim, 2018). Tourism studies also revealed that antecedents such as Environmental Attitude is one of the key drivers to pro environmental behaviour (Kiatkawsin and Han, 2017; Wong et al., 2020; Premi et al, 2019). Therefore, we propose the following hypothesis.

H4: Customer Attitude towards Green Services has a positive influence on Customer Behavioural Intentions.

Based on the Hypotheses (H1:H4) the following model is being proposed.

Figure 1: Proposed Theoretical Model
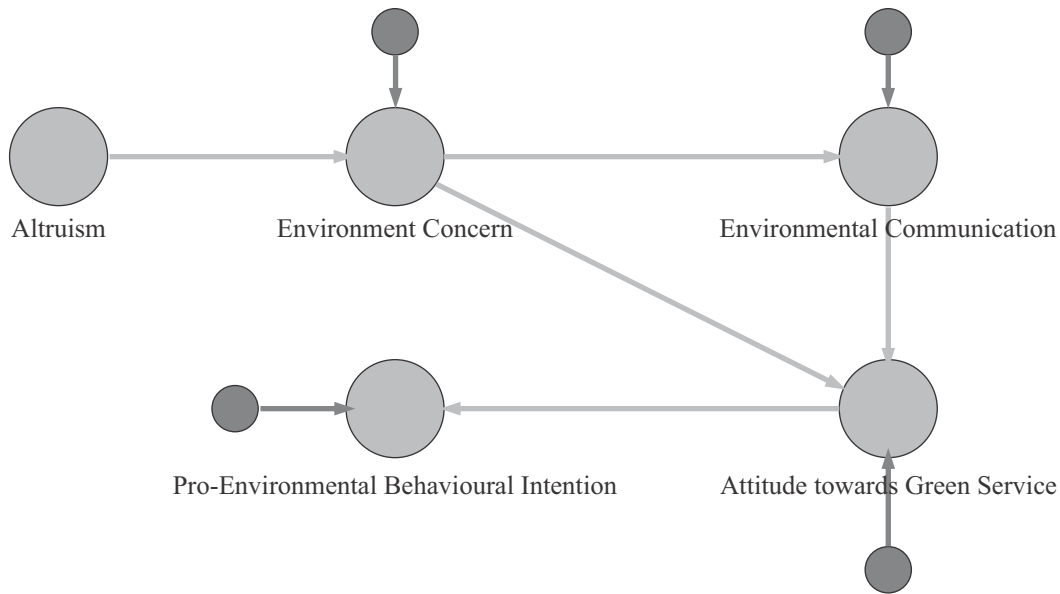
Methodology

Survey Design

A questionnaire was designed with the help of existing literature to collect data against the variables in the model. Data was collected randomly from patrons of fine dine restaurants. All items were measured with a 7 point Liekart scale strongly disagree (1) to strongly agree (7). The variables are defined as per table 1 below.

Table 1: Questionnaire Design

Altruism   *(Tewari A et al, 2022)*
• I prefer actions that help others more than myself. (A1)   • The well-being of others is essential to me. (A2)   • The needs of others are essential to me. (A3)   • Social responsibility is essential to me. (A4)   • One of the greatest satisfactions in life comes from giving to others. (A5)
Environmental Concern   *(Ulla A. et al, 2021)*
• I worry about the future of the environment. (EC1)   • Human progress is harming the environment. (EC2)   • Many of the claims about environmental threats are real. (EC3)
Environmental Communication   *(Kassing J et al, 2010; Fraj E et al, 2011)*
• Restaurants must create awareness about the environment. (ECM1)   • I am interested to learn about the green practices of the restaurants. (ECM2)   • I learn from various green signages within the restaurant premises. (ECM3)   • I usually look for eco-labels or environmental certifications from restaurants. (ECM4)

Attitude towards Green Services (Wu, S.I., Chen, J.Y., 2014)
•   Using green restaurants is righteous. (AT1) •   Using green restaurants is valuable. (AT2) •   Using green restaurants is delightful. (AT3) •   Using green restaurants is wise. (AT4)
Behavioural Intention (Morais L et al, 2021)
•   I am likely to engage in using green services. (BI1) •   I am likely to be loyal to a green service provider. (BI2) •   I am likely to pay a higher price for green services. (BI3)

Data Collection

Data was collected online and 368 responses were received. Out of 368 responses, 323 respondents visit a fine dine restaurant at least once a year and was considered for further analysis. The profile of the respondents are as per Table 2.

Table 2: Profile of Respondents

Criteria	% of Respondents
Gender	
Male	63.77%
Female	36.23%
Age	
18-30 years	76.47%
31-45 years	14.24%
> 45 years	9.28%
Education Levels	
PhD	11.76%
Postgraduate	42.41%
Graduate or less	45.82%

Respondents were further asked to rank their preference on the various parameters and their choices are reflected in Table 3.

Table 3: Preference Rank

Rank (1-6) Parameter	1	2	3	4	5	6	SCORE
Customer Feedback	6.59%	8.18%	10.23%	19.09%	31.14%	24.77%	2.66
Decor	7.50%	15.00%	30.91%	20.91%	17.27%	8.41%	3.49
Menu Choice	42.05%	34.09%	14.09%	6.82%	1.59%	1.36%	5.04
Past Experience	15.00%	8.64%	12.05%	16.14%	15.91%	32.27%	2.94
Price	25.00%	30.91%	24.32%	9.32%	7.27%	3.18%	4.47
Sustainability Measures	3.86%	3.18%	8.41%	27.73%	26.82%	30.00%	2.4

The above data indicates Menu Choice is the most crucial parameter for restaurant selection and Sustainability Measures being the least important. This also highlights that there is low awareness and appreciation of sustainability measures among respondents.

Data Analysis

Multicollinearity Test

A multicollinearity test was performed on the variables and both the outer and inner variance inflation factor (VIF) was found to be below 5 indicating moderate correlations (;). The data is shown in Table 4.

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis was conducted using Smart PLS. The factor loadings are as per Table 5, indicating a satisfactory fit. Model fit for CFA indicated acceptable Chisq/df, RMSEA, NFI, TLI, CFI values as described in Table 6. Construct Reliability and Validity and Discriminant Validity were tested and the values mainly were found within acceptable range.

Table 4: Multicollinearity Test

VIF - Outer Loading		Collinearity Statistics - VIF Inner Loading	
A1	1.431	AT -> Random	4.11
A2	2.319	Altruism -> Random	1.614
A3	1.634	BI -> Random	3.134
A4	1.932	EC -> Random	1.429
A5	1.647	ECM -> Random	2.996
AT1	2.519		
AT2	4.299		
AT3	4.14		
AT4	3.862		
BI1	2.767		
BI2	2.519		
BI3	1.865		
EC1	1.44		
EC2	1.488		
EC3	1.68		
ECM1	2.225		
ECM2	2.631		
ECM3	2.434		
ECM4	1.658		
Random	1		

Table 5: Standardized Outer Loadings

	AT	Altruism	BI	EC	ECM
A1		0.590			
A2		0.821			
A3		0.637			
A4		0.788			
A5		0.664			
AT1	0.803				
AT2	0.919				
AT3	0.899				
AT4	0.887				
BI1			0.918		
BI2			0.836		
BI3			0.713		
EC1				0.762	
EC2				0.599	
EC3				0.741	
ECM1					0.825
ECM2					0.847
ECM3					0.801
ECM4					0.639

Table 6: Model Fit for CFA

	Estimated model
Chi-square	390.57
Number of model parameters	48
Number of observations	322
Degrees of freedom	142
P value	0
ChiSqr/df	2.75
RMSEA	0.074
RMSEA LOW 90% CI	0.065
RMSEA HIGH 90% CI	0.083
GFI	0.885
AGFI	0.846
PGFI	0.662
SRMR	0.053
NFI	0.909
TLI	0.927
CFI	0.94
AIC	486.57
BIC	667.748

Table 7: Construct Reliability & Validity

	Cronbach's alpha (standardized)	Cronbach's alpha (unstandardized)	Composite reliability (rho_c)	Average variance extracted (AVE)
AT	0.929	0.929	0.93	0.771
Altruism	0.828	0.826	0.825	0.498
BI	0.863	0.858	0.856	0.684
EC	0.751	0.748	0.743	0.496
ECM	0.858	0.855	0.856	0.612

Table 8: Discriminant Validity Discriminant Validity Hetrotrait-Monotrait Ratio

	AT	Altruism	BI	EC	ECM
AT					
Altruism	0.579				
BI	0.880	0.524			
EC	0.566	0.692	0.485		
ECM	0.876	0.563	0.865	0.569	

Structural Equation Modelling

The theoretical model was tested using Smart PLS through a Covariance based Structural Equation Modelling (CB SEM). The major findings indicate a good model fit.

Table 9: Path Coefficients (Standardized)

Altruism -> Environmental Concern	0.780
Attitude towards Green Services -> Pro-Environmental Behavioural Intention	0.895
Environmental Communication -> Attitude towards Green Services	0.807
Environmental Concern -> Attitude towards Green Services	0.114
Environmental Concern -> Environmental Communication	0.660

This indicates that the direct relationship between environmental concern and attitude towards green services is quite low (0.114) compared to the relationship value through the mediator variable of environmental communication. The relationship between environmental concern and environmental communication is 0.660, and between environmental communication and attitude towards green services, it is 0.807. This indicates that environmental concern does not lead to positive attitude towards green services but becomes very strong when mediated through environmental communication.

The model fit was tested and the model was found to have a good fit as per the data shown in Table 10.

Table 10: Model Fit

	Estimated Model
Chi-square	407.015
Number of model parameters	43
Number of observations	322
Degrees of freedom	147
P value	0
ChiSqr/df	2.769
RMSEA	0.074
RMSEA LOW 90% CI	0.066
RMSEA HIGH 90% CI	0.083
GFI	0.882
AGFI	0.848
PGFI	0.683
SRMR	0.059
NFI	0.905
TLI	0.926
CFI	0.937
AIC	493.015
BIC	655.321

Reliability and Validity were tested using construct validity and discriminant validity and the result is found to be satisfactory.

Table 11: Construct Reliability and Validity of Model

	Cronbach's alpha (standardized)	Cronbach's alpha (unstandardized)	Composite reliability (rho_c)	Average variance extracted (AVE)
Altruism	0.828	0.826	0.825	0.498
Attitude towards Green Services	0.929	0.929	0.929	0.769
Environmental Communication	0.858	0.855	0.855	0.611
Environmental Concern	0.751	0.748	0.724	0.472
Pro-Environmental Behavioural Intention	0.863	0.858	0.856	0.684

Table 12: Discriminant Validity of the Model

Altruism	Altruism	Attitude towards Green Services	Environmental Communication	Environmental Concern	Pro-Environmental Behavioural Intention
Attitude towards Green Services					
Environmental Communication	0.579				
Environmental Concern	0.563	0.876		0.485	
Pro-Environmental Behavioural	0.692	0.566	0.569		
Intention	0.524	0.88	0.865		

The findings validates hypotheses 1, 3 and 4 but does not validate hypothesis 2. This indicates that Environmental Concern does not directly affect Attitude towards Green Services but is related to Attitude through a mediating variable, Environmental Communication. Hence the following hypothesis are validated through three findings

*H1: Altruism positively influences Customer Environmental Concerns*

H3: Provider Environmental Communication mediates the relationship between Customer Environmental Concern and Attitude towards Green Services.

H4: Customer Attitude towards Green Services has a positive influence on Customer Behavioural Intentions.

The findings also validate the scale chosen through literature review, and the same can be used to measure the given latent variables.
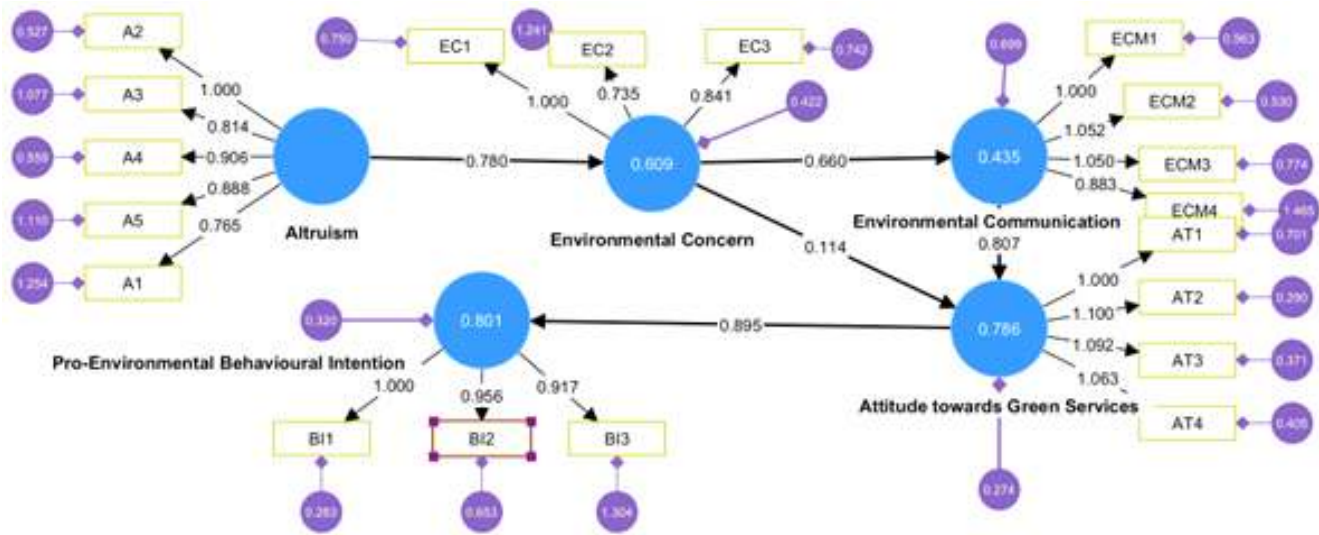
Implications to Theory & Practice

This research supports extension of the Theory of Planned Behaviour (TPB) in understanding the consumer behavioural intention towards green patronage. Altruism was introduced in the proposed model as an antecedent variable to Environmental Concern (Subjective Norm). The research also demonstrates that in the case of the Restaurant industry, Environmental Concern and Attitude are not directly linked but through a mediating variable of Environmental Communication.

This model highlights some major implications for the Restaurant. Industry. The research clearly shows that customers with high altruism and environmental concern may not develop green attitudes and behavioural intention without a strong environmental communication effort. Environmental communication should highlight not only the efforts taken by the restaurant concerned but also the significance of overall environmental sustainability practices. The restaurant concerned may also explore Green Certifications and communicate that extensively as a differentiator. To make the communication more effective green signages and awareness of

customer's responsibilities may also be highlighted to involve customers in the sustainability initiatives to influence behavioural intentions.

Limitations and Future Research

The research has a geographical limitation of all respondents being from India with a heavy weightage from South of India. The research is limited to the experiences of customers of fine dining restaurants.

Future research can work on these limitations and create a more broad based project. The scale also needs to be tested with other constituents of hospitality industry mainly hotels, theme parks and resorts. Future research may also extend the same to actual buying behaviour to check whether pro environmental behavioural intentions translates to actual buying and increases buyer loyalty.

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