EXPLORING THE DETERMINANTS OF PRO-ENVIRONMENTAL BEHAVIOUR IN ECO-TOURISM: A CASE STUDY OF VISITORS TO THE AYAZINI RUINS

İsa Yayla[1], Erdem Baydeniz[2], Hakkı Çilginoğlu[3]

**Corresponding author E-mail: isa.yayla@ktb.gov.tr*

ARTICLE INFO

OriginalArticle

Received: *22 February 2023*

Accepted: *20 April 2023*

doi:10.59267/ekoPolj2302357Y

UDC 338.482:316]:338.48-6:502/504

Keywords:

Eco-tourism, Pro-environmental behaviour, Tourism, Ayazini Ruins

***JEL**: Z32*

ABSTRACT

This study aims to determine the pro-environmental behaviour influencing factors of tourists within the scope of eco-tourism. The population of the study consists of tourists visiting Ayazini Ruins. In the study, the data were collected using a questionnaire form with a convenience sampling method. 406 questionnaires were administered to the participants. The data were analyzed in the Smart PLS statistical program, and the structural equation model was used to analyze the data. Functional, social, and emotional value significantly positively affects environmental consciousness; conditional value does not positively influence environmental consciousness. Moreover, environmental consciousness significantly positively affects the green image, last chance experience, psychological ownership towards the environment, and pro-environment attitudes. Besides this green image, last chance experience, psychological ownership towards the environment, and pro-environment attitudes significantly positively affect pro-environment behaviour.

Introduction

Environmental Consciousness (EC) refers to an individual's awareness and concern for the natural environment, which can manifest as Pro-Environment Attitudes (PEA) and behaviour (Sharma & Bansal, 2013). Psychological Ownership Towards Environment (POTE) involves a sense of personal responsibility and attachment to the natural environment (Kuo et al., 2021), which can motivate people to protect and preserve it.

1 Isa Yayla, PhD., Ministry of Culture and Tourism, Ankara, Turkey, Phone: +905526646065, E-mail: isa.yayla@ktb.gov.tr, ORCID ID (https://orcid.org/0000-0002-6473-7904)

2 Erdem Baydeniz, PhD., Afyon Kocatepe University, Afyonkarahisar, Turkey, Phone: +905416550184, E-mail: erdembydeniz@gmail.com, ORCID ID (https://orcid.org/0000-0003-1003-0521)

3 Hakkı *Çilginoğlu*, Asst. Prof. Dr. Kastamonu University, Department of Gastronomy and Culinary Art, Kastamonu, Turkey, Phone: +905413707037, E-mail: hcilginoglu@kastamonu.edu.tr, ORCID ID (https://orcid.org/0000-0002-6787-3397)

Eco-tourism, which is sustainable tourism that supports conservation efforts (Hawkins, 2004), can be a way to promote both EC and POTE by providing opportunities for people to connect with and learn about the natural environment. To effectively promote ecological consciousness and Pro-Environment Behaviour (PEB) within the framework of eco-tourism, it is essential to consider factors such as education, accessibility, personal value, and social influence (Liu et al., 2014). One way to promote EC and PEB within the framework of eco-tourism is through education and information sharing (Yang et al., 2021). This can include providing information about the natural environment and the impact of human actions on it, as well as offering educational activities and experiences that allow people to learn about and connect with the natural environment (Huang & Liu, 2017). Personal value is also essential in promoting EC and PEB (Xie et al., 2020). Encouraging people to connect with the natural environment on a personal level and align their values with those of conservation can be an effective way to motivate PEB (Paswan et al., 2017). This can involve activities that allow people to experience and appreciate the natural environment and encourage people to think about the long-term consequences of their actions on the environment (Liu et al., 2014). Seeing others engage in PEB can serve as a model and encourage individuals to adopt similar behaviours (Thøgersen & Crompton, 2009). This can involve promoting eco-friendly practices and initiatives within the local community and showcasing successful conservation efforts. Overall, by considering these factors and implementing strategies that promote EC and PEB, eco-tourism can be a powerful tool for protecting and preserving the natural environment while providing economic and social benefits for local communities. This study aimed to identify the factors that influence environmentally friendly behaviour in the context of sustainable eco-tourism for the future of the Ayazini Archaeological Site. The fact that there has been no previous study on eco-tourism in the context of the Ayazini Archaeological Site is one factor that demonstrates this research's originality.

Theoretical framework and hypotheses development

Perceived value and environmental consciousness

Perceived value is the value an individual assigns to an object or experience based on personal beliefs, preferences, and circumstances (Brown, 1984). It is often influenced by factors such as the functional value, social value, emotional value, and conditional value that the object or experience provides, as well as other factors such as the price (Beyari & Abareshi, 2018), availability, and reputation of the entity or experience (Lin et al., 2012). Perceived value can be influenced by marketing and advertising efforts, as companies often highlight their products or services' functional, social, emotional, and conditional value to appeal to potential customers (Hur et al., 2012). However, perceived value can also be influenced by personal experiences, recommendations from friends and family, and other factors (Castellanos-Verdugo et al., 2016). Overall, perceived value is subjective and can vary significantly from one individual to another (Sanchez et al., 2006). From perceived value dimensions, functional value refers to the practical benefits or utility that an object or experience provides (Zhang et al., 2010).

Social value refers to the benefits or positive effects of an object or experience on an individual's relationships or sense of community. Emotional value refers to the feelings or emotional reactions that an object or experience elicits (Lee et al., 2021). Conditional value refers to the knowledge or understanding that an object or experience provides (Jamrozy & Lawonk, 2017).

EC refers to the awareness and concern individuals have for the natural environment and the impact of their actions on it (Lin & Niu, 2018). In the tourism industry, EC is becoming increasingly important as the negative impacts of tourism, such as pollution and resource depletion, have come to light (Sharma & Bansal, 2013). Tourism can positively and negatively impact the environment (Runge et al., 2020). On the one hand, it can benefit local communities economically and support conservation efforts (Ahmad et al., 2020). On the other hand, it can also lead to overcrowding, pollution, and resource depletion if not appropriately managed. EC tourism, also known as eco-tourism or sustainable tourism, aims to minimize traditional tourism's negative environmental and social impacts (Ramaswamy & Kumar, 2010). At the same time, it maximizes local communities' positive economic and cultural benefits (Kreps, 2008). When the studies are examined, it has been determined that the perceived value affects EC (Tsai et al., 2012; Souza et al., 2020). Accordingly, the following hypotheses have been developed.

H_1: *Functional value has a significant positive effect on EC.*

H_2: *Social value has a significant positive effect on EC.*

H_3: *Emotional value has a significant positive effect on EC.*

H_4: *Conditional value has a significant positive effect on EC.*

Green image

Image is the impression formed in the receiver's memory of feelings or thoughts about something. It can be stated that these impressions are shaped by information obtained from various sources or by the experiences of other people or the individual themselves (Yükselen & Güler, 2009: 22). Destination imagery is a group of beliefs, thoughts, and impressions that individuals have about a place or destination (Baloğlu & McClearly, 1999: 871). Eco-tourism, also known as sustainable tourism, minimizes negative environmental and social impacts while maximizing the positive contributions to local communities and the environment (Lee et al., 2010). On the other hand, a Green Image (GI) refers to the perception that a company or destination has a positive environmental impact and is committed to sustainable practices (Namkung & Jang, 2013). When the studies conducted within the framework of eco-tourism are examined, it has been determined that EC affects the GI.

H_5: *EC has a significant positive effect on the GI.*

Last-chance experience

Last Chance Experience (LCE) is a type of tourism that arises from believing that a place, person, or object will not exist or be visitable in the future (Fisher & Stewart, 2017). Lemelin et al. (2010) have described LCE as a niche market based on the opportunity to see disappearing places. This type of tourism is based on the belief that an area that interests' tourists will disappear. During the LCE, tourism offers the opportunity to see disappearing places, and it can also contribute to the conservation of these places. Visitors' interest in these places can encourage locals to show more interest in conservation efforts. Additionally, LCE does not only encompass places at risk of disappearing due to natural events. Some places risk disappearing due to no longer being used as residential areas for a city or village (Piggott-McKellar & McNamara, 2017).

H_6: *EC has a significant positive effect on the LCE.*

Psychological ownership towards environment

POTE refers to the sense of personal responsibility and attachment an individual feels toward the natural world (Kuo et al., 2021). This concept has gained increasing attention in recent years as the need for environmental conservation and sustainability becomes more pressing. Research has shown that individuals with a high level of POTE are more likely to engage in PEB, such as reducing their environmental footprint and advocating for environmental policies (Süssenbach & Kamleitner, 2018). POTE creates a sense of responsibility and a desire to protect and preserve the natural world (Jiang et al., 2019). It can be influenced by various factors such as personal values, beliefs, knowledge, and identity (Pierce et al., 2001). It can also be affected by an individual's level of involvement and attachment to the environment (Afsar & Umrani, 2020). Other factors influencing POTE include an individual's cultural background, social norms and expectations, and past experiences (Avey et al., 2012). To promote POTE, it is important to encourage individuals to develop a personal connection with nature through outdoor recreation, environmental education, and volunteering (Dresner et al., 2015).

H_7: *EC significantly positively affects POTE.*

Pro-environment attitudes

Attitudes are evaluative statements or judgments people hold about objects, people, issues, or events. Attitudes can be positive, negative, or neutral, often influenced by a person's values, beliefs, and experiences (Eiser & Van Der Pligt, 2015). Attitudes can significantly impact an individual's behaviour, shaping how a person thinks about and reacts to various situations (Glasman & Albarracín, 2006). PEA refer to a positive or supportive perspective toward the natural environment and a commitment to protecting it (Chen & Chai, 2010). People who hold PEA may be concerned about the effects of human activities on the earth's environment and may advocate for policies and practices

that help to conserve natural resources, reduce pollution, and protect biodiversity (Stefănica & Butnaru, 2015). These attitudes may be motivated by various factors, such as a love of nature, a belief in preserving the environment for future generations, or a desire to protect the earth's natural systems for their own sake (Dunlap et al., 2000). There are many ways in which individuals can express their PEA, such as by reducing their environmental impact through their consumption and lifestyle choices, supporting environmentally friendly businesses and organizations, or advocating for policies that protect the environment (Yu & Yu, 2017). PEA are essential for creating a more sustainable and healthier planet (Chen & Chai, 2010). PEA and behaviours can also have personal benefits, such as improving one's health and well-being (Crookes et al., 2022; Chen & Chai, 2010). Spending time in nature and outdoor activities can positively impact mental health and help reduce stress and improve overall well-being. As a result of these arguments, the following hypothesis was developed.

H_8: *EC has a significant positive effect on PEA.*

Pro-environment behaviour

The intention is the goal state in a person's mind, planning according to that goal, thinking about the future, making decisions for oneself, and implementing one's thoughts and dreams (Lange & Dewitte, 2019). On the other hand, behaviour can be defined as a series of attitudes and actions people take within society (Thøgersen, 2014). Behavioral intentions predict tourists' needs in the tourism industry (Lien et al., 2011) and measure tourists' preferences to value time and place (Lin, 2017: 390). PEB protect and preserve the natural environment (Blok et al., 2015). In tourism, PEBs of tourists can be defined as actions that minimize harm to the destination's environment and actively contribute to its preservation and enhancement (Miller et al., 2015). Tourists' PEBs can vary depending on various factors, such as their values, attitudes, and knowledge about environmental issues and the destination's social and cultural context. The studies that have been done have been examined, and the following hypotheses have been developed for the related research (Miller et al., 2020; Jiang et al., 2019; Xu et al., 2022).

H_9: *GI has a significant positive effect on PEB.*

H_{10}: *LCE has a significant positive effect on PEB.*

H_{11}: *POTE has a significant positive effect on PEB.*

H_{12}: *PEA has a significant positive effect on PEB.*

Materials and methods

Study site: Ayazini Ruins

The study site is the Ayazini Ruins, a protected archaeological and natural area in the Frig Valley within the district of Ihsaniye, Afyonkarahisar. The Frig Valley is known

for its rich history and immovable cultural heritage. The Ayazini Ruins are listed on the Turkish Cultural Heritage list and protected by the Ministry of Culture and Tourism (İçlek & Gül, 2021). The study also notes that many unregistered immovable cultural assets in the area are not protected. The site is also known for its rock monuments reflecting the Frig culture, and the Oyma Church, a rock church from the Byzantine period, is one of the most notable works in the area (İçlek & Gül, 2021). The research aims to determine the factors that affect environmentally friendly behaviour within the framework of eco-tourism for a sustainable future.

Research instrument

This study applied a questionnaire to the tourists visiting the Ayazini Ruins. The survey used in the research consists of two sections. The first section includes categorical questions on the demographic characteristics of the participants. The second section of the survey includes statements for measuring perceived value dimensions, EC, LCE, POTE, PEA, GI, and PEB. The research used the perceived value scale developed by Suki & Suki (2015), which consists of 16 items and four dimensions. The scale developed by Huang et al. (2014), composed of 8 items, was used for the variable of EC. The scale developed by Huang et al. (2014) consisting of 3 items was used for the variable of GI. The scale developed by Piggott-McKellar and McNamara (2017), composed of five things, was used for the variable of LCE. The scale developed by Kirk et al. (2018) consisting of 5 items was used for the variable of POTE. Finally, the PEB (3) and PEA (6) scales developed by Ajzen (1991) consisting of items were used.

Sampling and data collection

Since it is not easy to touch the universe in terms of the research process, time, place, cost, etc., this study adopts a sampling method. In this study, convenience sampling, one of the non-probability sampling methods, was preferred. The data collection was conducted between November 1-26, 2022, and 450 surveys were administered to participants. However, only 406 surveys were considered suitable for analysis. The participants were tourists visiting the Ayazini Ruins, Afyonkarahisar. The survey was administered in person to the tourists visiting the Ruins. The researcher collected the data in person, and the survey was administered in Turkish. The sample size was calculated using the G*POWER 3.1.9.4 software program (Faul et al., 2007; Rashid et al., 2020). It was determined that the sample size required was 100 (power = 0.80, $f2 = 0.15$, $\alpha = 0.05$).

Data analysis

The collected information was encoded in the SPSS software to analyze the data and study the structural equation modelling technique. Using the Smart PLS statistical program, measurement and structural models were evaluated in a two-stage approach (Hair et al., 2022). After the measurement model analysis for the reliability and validity of the scale, the structural model was evaluated. In the analysis stage, demographic

survey results, reliability and validity analysis (Cronbach Alpha, rho_A, rho_C, AVE, VIF), discriminant validity analysis (Fornell Larcker, HTMT, cross-loadings), model fit value (SRMR, d_ULS, d_G, X^2, NFI, GoF), model effect sizes (InnerVIF, f^2, Q^2, R^2) and structural equation model results are listed in the table.

Maximum likelihood estimation is a common method used in SEM research. This method assumes that the collected data follow a multivariate normal distribution. To assess this assumption, kurtosis and skewness coefficients were calculated using SPSS and Smart PLS software as recommended by Hair et al. (2022). The results of this analysis indicated that the data under investigation satisfied the requirement of multivariate normality, with kurtosis and skewness coefficients falling within the acceptable range of -1.5 to +1.5. To further confirm the normality assumption, Mardia's normality test was conducted. The results of this test revealed that the data had multivariate skewness ($\beta = 7$; $p>0.01$) and multivariate kurtosis ($\beta = 76$; $p >0.05$) values, indicating that the data were normally distributed.

When the results of the CTA analysis are examined, it is determined that the structure has a "reflective" design considering that the confidence intervals of the other variables are 0. In this context, the covariance-based Smart PLSc method was used in the research analysis stages of the Smart PLS statistical program. Principal component factor analysis was performed for all items, and Harman's univariate test was applied (Fuller et al., 2016). It was found that none of the things could explain 50% of the variance with a single factor (42%), and there was no common method bias across the study. The results also confirmed that the correlations between the variables were low. To confirm the absence of multicollinearity among the variables, tolerance values, variance inflation factor (VIF), and correlations among variables were examined. According to Hair et al. (2022), multicollinearity is not confirmed since the bivariate correlation between variables is below 0.70, and the VIF is below 3.0.

Results

When the participants' genders are examined, 48% are male, and 52% are female. When the age range is reviewed, it is seen that 32% are concentrated between 35-44. Regarding the participant's marital status, 49% are married, and 51% are single. 44% of the participants are graduates of undergraduate programs, 31% are associate degree holders, 20% are high school graduates, and 5% are postgraduate degree holders. When the participants' perceived income is examined, 58% report having a middle-level income (Türkiye income 8500-11000 TL).

Outer model

Table 1. Results of validity and reliability analysis for scales

Indicator	Factor	CA	rho_A	rho_C	AVE
Functional Value-quality (FV)					
FV1	0.802	0.769	0.771	0.852	0.591
FV2	0.717				
FV3	0.756				
FV4	0.797				
Social Value (SV)					
SV1	0.818	0.820	0.827	0.881	0.650
SV2	0.817				
SV3	0.834				
SV4	0.752				
Emotional Value (EV)					
EV1	0.753	0.826	0.834	0.885	0.658
EV2	0.789				
EV3	0.860				
EV4	0.838				
Conditional Value (CV)					
CV1	0.745	0.763	0.771	0.847	0.580
CV2	0.744				
CV3	0.753				
CV4	0.804				
Environmental Consciousness (EC)					
EC1	0.909	0.959	0.960	0.965	0.777
EC2	0.868				
EC3	0.907				
EC4	0.900				
EC5	0.908				
EC6	0.862				
EC7	0.857				
EC8	0.840				
Green Image (GI)					
GI1	0.870	0.868	0.872	0.919	0.792
GI2	0.924				
GI3	0.875				
Last-Chance Experience (LCE)					
LCE1	0.851	0.949	0.950	0.961	0.833
LCE2	0.941				
LCE3	0.939				
LCE4	0.941				
LCE5	0.887				
Psychological Ownership Towards Environment (POTE)					

Indicator	Factor	CA	rho_A	rho_C	AVE
POTE1	0.891	0.951	0.952	0.962	0.836
POTE2	0.914				
POTE3	0.930				
POTE4	0.918				
POTE5	0.919				
Pro-Environment Attitudes (PEA)					
PEA1	0.863	0.921	0.922	0.939	0.719
PEA2	0.897				
PEA3	0.862				
PEA4	0.884				
PEA5	0.841				
PEA6	0.732				
Pro-Environment Behaviour (PEB)					
PEB1	0.937	0.918	0.918	0.948	0.859
PEB2	0.918				
PEB3	0.926				

According to Nunnally and Bernstein (1994), Cronbach's alpha and rho_A values above 0.7 can be considered satisfactory. In the study, these values were found in an acceptable range. Convergent validity analysis is evaluated with two tests; factor loads, AVE and rho_C. Fornell and Larcker (1981) have posited that achieving values of at least 0.50 for the AVE and rho_C indicates good validity and reliability for scales employed in a study. Upon conducting an evaluation, it has been found that all variables have fulfilled the criteria above. Hence, the first phase of establishing the scales' validity and reliability has been accomplished.

Table 2. Fornell Larcker criterion and HTMT ration

Fornell Larcker Criterion										
	PEA	PEB	CV	EC	EV	FV	GI	LCE	POTE	SV
PEA	**0.848**									
PEB	0.557	**0.927**								
CV	0.346	0.458	**0.762**							
EC	0.670	0.683	0.461	**0.882**						
EV	0.367	0.524	0.862	0.469	**0.811**					
FV	0.438	0.638	0.389	0.609	0.376	**0.769**				
GI	0.527	0.713	0.418	0.716	0.454	0.626	**0.890**			
LCE	0.519	0.735	0.418	0.725	0.461	0.625	0.859	**0.913**		
POTE	0.376	0.550	0.394	0.510	0.434	0.396	0.511	0.529	**0.914**	
SV	0.404	0.521	0.381	0.527	0.354	0.676	0.588	0.550	0.307	**0.806**
HTMT Ration										
PEA										
PEB	0.594									
CV	0.397	0.536								
EC	0.703	0.721	0.524							

EV	0.412	0.599	0.987	0.520						
FV	0.507	0.757	0.498	0.701	0.469					
GI	0.578	0.797	0.498	0.777	0.532	0.765				
LCE	0.541	0.787	0.481	0.753	0.517	0.731	0.945			
POTE	0.398	0.588	0.457	0.528	0.486	0.465	0.562	0.556		
SV	0.452	0.598	0.466	0.586	0.423	0.848	0.692	0.618	0.346	

The study analyzed two tests to measure discriminant validity, the Fornell-Larcker criterion and the HTMT ratio. This method is based on the view that latent variables should better explain the item variable than other latent variables.

The standardized root means square residual (SRMR) value was examined for the fit indices of the research model. According to Henseler et al. (2016) and Cho et al. (2020), the SRMR value should be less than 0.08. Thus, a meaningful model fit was determined for this study.

Inner model

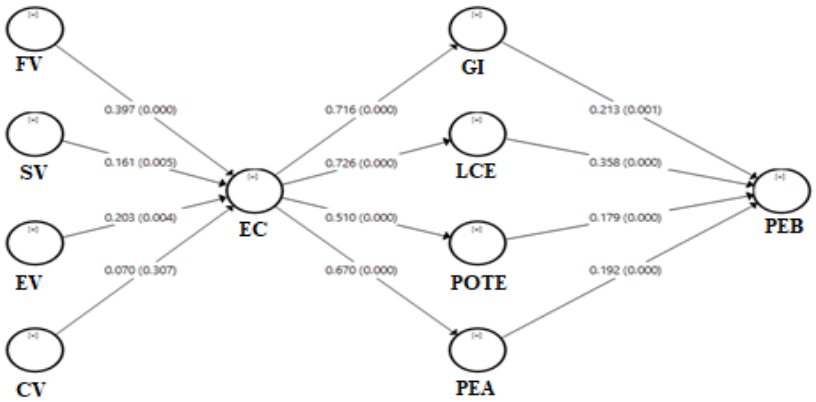
Based on the results obtained in the study, it was determined that the VIF values had appropriate values. If the R^2 value is 0.5 indicates a medium effect; 0.25 or less means a weak effect (Hair et al., 2016). The R^2 values in the current research show that the independent variables generally significantly impact the dependent variables. If the f^2 value is below or equivalent to 0.02, it means a common effect. Suppose the f^2 value shows 0.15 or higher. In that case, it indicates a medium result; if it shows 0.35 or higher, it means a strong effect (Cohen, 1988). In the current research, the f^2 generally indicates that the latent variables have a substantial impact. Prediction power analysis is a method that calculates the prediction power of the model with the Q^2 (Blindfolding) method, and if it is 0.15 or higher, it is regarded as medium prediction power; if it is 0.35 or higher, it is considered ample prediction power (Hair et al., 2022). As a result of the analyses, the Q^2 values obtained show that the prediction power is at the level of ample prediction power.

Table 3. Path analysis result

HYPOTHESES		ß	X	S.d.	t	p	Result
H1	FV -> EC	0.397	0.396	0.053	7.521	0.000	Supported
H2	SV -> EC	0.161	0.162	0.057	2.827	0.005	Supported
H3	EV -> EC	0.203	0.205	0.070	2.891	0.004	Supported
H4	CV -> EC	0.070	0.069	0.068	1.023	0.307	Not Supported
H5	EC -> GI	0.716	0.716	0.029	24.307	0.000	Supported
H6	EC -> LCE	0.726	0.726	0.030	23.826	0.000	Supported
H7	EC -> POTE	0.510	0.505	0.046	11.097	0.000	Supported
H8	EC -> PEA	0.670	0.670	0.039	17.017	0.000	Supported
H9	GI -> PEB	0.213	0.213	0.065	3.255	0.001	Supported
H10	LCE -> PEB	0.358	0.358	0.076	4.696	0.000	Supported
H11	POTE -> PEB	0.179	0.177	0.051	3.511	0.000	Supported
H12	PEA -> PEB	0.192	0.191	0.044	4.321	0.000	Supported

The present study examined the relationships between various constructs, including practical, social, emotional, and conditional value, EC, GI, LCE, POTE, PEA, and PEB. The structural model evaluation was conducted after the measurement model evaluation to ensure the validity and reliability of the constructs. The study's results indicate that practical, social, and emotional value have a significant positive effect on EC, while conditional value does not positively influence EC. Thus, the H_1, H_2, and H_3 hypotheses were supported, and the H_4 hypothesis was also supported. Moreover, the study found that EC has a significant positive effect on GI, LCE, POTE, and PEA, thus empirically supporting the H_5, H_6, H_7, and H_8 hypotheses. Additionally, GI, LCE, POTE, and PEA significantly positively affect PEB, thus supporting the H_9, H10, H_{11}, and H_{12} hypotheses. The study's findings suggest that practical, social, and emotional value can enhance individuals' environmental consciousness, leading to positive outcomes such as a green image, last-chance experience, psychological ownership towards the environment, pro-environment attitudes, and, ultimately, pro-environmental behaviour. These results have been visually presented in Figure 1.

Figure 1. Research Model



Conclusion and implications

The present study aimed to investigate the factors that influence EC and PEB and to explore the relationships between these constructs and other environmental attitudes and behaviours. The study's results suggest that functional, social, and emotional values positively influence EC, whereas conditional value does not. This implies that individuals who value the practical, social, and emotional benefits of engaging in PEB are likelier to exhibit higher levels of EC. Therefore, interventions promoting PEB should highlight the practical, social, and emotional benefits of engaging in environmentally friendly behaviours. In addition, this study's findings demonstrate that EC positively impacts other environmental attitudes and behaviours, including GI, LCE, POTE, and PEA. These variables, in turn, have a positive influence on PEB. Therefore, individuals with higher levels of EC are more likely to exhibit more positive attitudes and behaviours

towards the environment, increasing the likelihood of engaging in PEB. The implications of these findings are twofold. Firstly, they suggest that promoting EC is a critical factor in promoting PEB, and highlighting the practical, social, and emotional benefits of engaging in PEB may be more effective in promoting EC than relying on conditional rewards or incentives. Secondly, the results of this study indicate that interventions aimed at promoting PEB should focus on increasing EC and promoting a positive image of the environment, a sense of urgency regarding environmental issues, a sense of ownership and accountability for the environment, and PEA.

Theoretical implications

The theoretical implications of this study are that it adds to the existing literature on EC and PEB by showing the importance of functional, social, and emotional values in shaping EC and the role of EC in driving PEB. It also highlights the importance of considering the influence of conditional value and other variables in efforts to promote PEB (Ahmad et al., 2021; Xu et al., 2022). This study contributes to understanding how the different values influence EC and how EC influences PEB (Fu et al., 2017; Zheng, 2010). It also underlines the importance of considering the interplay of these different variables when designing interventions and campaigns to promote PEB. Additionally, the study provides a new perspective on the role of intrinsic motivation in shaping PEB, suggesting that focusing on the inherent benefits of PEB, rather than external rewards, may be more effective in promoting PEB.

Practical implications

The practical implications of this study are that it provides insight into promoting PEB effectively. Specifically, the study suggests that efforts to promote PEB should focus on increasing EC by highlighting PEB's functional, social, and emotional benefits rather than relying on rewards or incentives. Additionally, the study suggests that encouraging a positive image of the environment, a sense of urgency about environmental issues, a sense of ownership and responsibility for the environment, and PEA may also be effective in promoting PEB. One practical implication of the study is that policymakers can use organizations and businesses to design effective campaigns that promote PEB by focusing on the intrinsic motivations for PEB, such as the emotional and social benefits and the sense of ownership and responsibility for the environment (Muralidharan & Sheehan, 2018; Ramkissoon, 2020). Another practical implication is that organizations and businesses can use it to improve their sustainability by creating and promoting a positive image of the company as environmentally friendly and encouraging a sense of ownership and responsibility among employees, stakeholders, and customers (Ren et al., 2023).

Limitations and recommendations for future research

This study's limitations include using a specific research design and sample, which may limit the generalizability of findings to other populations and environments. Additionally, the study relied on self-reported measures, which may be subject to social

desirability bias. Another limitation is that the study only examines a specific set of variables and their relationships. It does not consider other potential factors influencing EC and PEB. To resolve these limitations, future research should replicate the study with different samples and research designs to increase the generalizability of the findings. Additionally, future research could use other methods, such as experiments or observational studies, to investigate the causal relationships between the variables further. The study has limitations, and further research is needed to replicate and generalize the findings. Future research should use different samples, research designs, and methods and investigate other potential factors influencing EC and PEB.

Conflict of interests

The authors declare no conflict of interest.

References

1. Afsar, B., & Umrani, W. A. (2020). Corporate social responsibility and pro-environmental behaviour at workplace: The role of moral reflectiveness, coworker advocacy, and environmental commitment. *Corporate Social Responsibility and Environmental Management*, *27*(1), 109-125. https://doi.org/10.1002/csr.1777
2. Ahmad, N., Ullah, Z., Arshad, M. Z., Kamran, H., Scholz, M., & Han, H. (2021). Relationship between corporate social responsibility at the micro-level and environmental performance: The mediating role of employee pro-environmental behaviour and the moderating role of gender. *Sustainable Production and Consumption*, *27*, 1138-1148. https://doi.org/10.1016/j.spc.2021.02.034
3. Ahmad, W., Kim, W. G., Anwer, Z., & Zhuang, W. (2020). Schwartz personal values, theory of planned behaviour and environmental consciousness: How are tourists' visiting intentions towards eco-friendly destinations shaped?. *Journal of Business Research*, *110*, 228-236. https://doi.org/10.1016/j.jbusres.2020.01.040
4. Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T
5. Avey, J. B., Wernsing, T. S., & Palanski, M. E. (2012). Exploring the process of ethical leadership: The mediating role of employee voice and psychological ownership. *Journal of Business Ethics*, *107*(1), 21-34. https://doi.org/10.1007/s10551-012-1298-2
6. Baloğlu, S., & McClearly, K. W. (1999). US international pleasure travelers' images of four Mediterranean destinations: A comparison of visitors and nonvisitors. *Journal of travel research*, *38*(2), 144-152. https://doi.org/10.1177/004728759903800207
7. Beyari, H., & Abareshi, A. (2018). Consumer satisfaction in social commerce: an exploration of its antecedents and consequences. *The Journal of developing areas*, *52*(2), 55-72. https://doi.org/10.1353/jda.2018.0022

8. Blok, V., Wesselink, R., Studynka, O., & Kemp, R. (2015). Encouraging sustainability in the workplace: A survey on the pro-environmental behaviour of university employees. *Journal of cleaner production, 106,* 55-67. https://doi.org/10.1016/j.jclepro.2014.07.063

9. Brown, T. C. (1984). The concept of value in resource allocation. *Land economics*, *60*(3), 231-246. https://doi.org/10.2307/3146184

10. Castellanos-Verdugo, M., Vega-Vázquez, M., Oviedo-García, M. Á., & Orgaz-Agüera, F. (2016). The relevance of psychological factors in the ecotourist experience satisfaction through ecotourist site perceived value. *Journal of Cleaner Production*, *124*, 226-235. https://doi.org/10.1016/j.jclepro.2016.02.126

11. Chen, T. B., & Chai, L. T. (2010). Attitude towards the environment and green products: Consumers' perspective. *Management Science and Engineering*, *4*(2), 27-39. http://dx.doi.org/10.3968/j.mse.1913035X20100402.002

12. Cho, G., Hwang, H., Sarstedt, M., & Ringle, C. M. (2020). Cutoff criteria for overall model fit indexes in generalized structured component analysis. *Journal of Marketing Analytics*, *8*(4), 189-202. https://doi.org/10.1057/s41270-020-00089-1

13. Cohen, J. (1988). Statistical power analysis for the behavioural sciences. Lawrence Erlbaum Associates. *Hillsdale, NJ*, 20-26.

14. Crookes, A. E., Warren, M. A., & Meyer, S. (2022). When threat is imminent, does character matter for climate action? Exploring environmental concerns, well-being, and character strengths in the Pacific Island Countries. *South African Journal of Psychology*, *52*(4), 436-448. https://doi.org/10.1177/00812463221129361

15. Dresner, M., Handelman, C., Braun, S., & Rollwagen-Bollens, G. (2015). Environmental identity, pro-environmental behaviours, and civic engagement of volunteer stewards in Portland area parks. *Environmental Education Research*, *21*(7), 991-1010. https://doi.org/10.1080/13504622.2014.964188

16. Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New trends in measuring environmental attitudes: measuring endorsement of the new ecological paradigm: a revised NEP scale. *Journal of social issues*, *56*(3), 425-442. https://doi.org/10.1111/0022-4537.00176

17. Eiser, J. R., & Van Der Pligt, J. (2015). *Attitudes and decisions*. Psychology Press. https://doi.org/10.4324/9781315668222

18. Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behaviour research methods*, *39*(2), 175-191. https://doi.org/10.3758/BF03193146

19. Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39-50. https://doi.org/10.1177/002224378101800104

20. Fisher, D., & Stewart, E. J. (2017). Tourism, time, and the last chance. *Tourism Analysis*, *22*(4), 511-521. https://doi.org/10.3727/108354217X15023805452068
21. Fu, L., Zhang, Y., & Bai, Y. (2017). Pro-environmental awareness and behaviours on campus: Evidence from Tianjin, China. *Eurasia Journal of Mathematics, Science and Technology Education*, *14*(1), 427-445. https://doi.org/10.12973/ejmste/77953
22. Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common Methods Variance Detection in Business Research. *Journal of Business Research, 69*(8), 3192-3198. https://doi.org/10.1016/j.jbusres.2015.12.008
23. Glasman, L. R., & Albarracín, D. (2006). Forming attitudes that predict future behaviour: a meta-analysis of the attitude-behaviour relation. *Psychological bulletin*, *132*(5), 778-822. https://psycnet.apa.org/doi/10.1037/0033-2909.132.5.778
24. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). *When to Use and How to Report the Results of PLS-SEM.* European Business Review, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203
25. Hair, J. F., Sarstedt, M., Matthews, L. M., & Ringle, C. M. (2016). *Identifying and Treating Unobserved Heterogeneity with FIMIX-PLS:* Part I-Method. European Business Review, 28(1), 63-76. https://doi.org/10.1108/EBR-09-2015-0094
26. Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM),* Sage, Thousand Oaks, CA. https://doi.org/10.1007/978-3-030-80519-7
27. Hawkins, D. E. (2004). A protected areas eco-tourism competitive cluster approach to catalyze biodiversity conservation and economic growth in Bulgaria. *Journal of Sustainable Tourism*, *12*(3), 219-244. https://doi.org/10.1080/09669580408667235
28. Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS Path Modeling in New Technology Research: Updated Guidelines. *Ind. Manag. Data Syst., 116*, 2-20. https://doi.org/10.1108/IMDS-09-2015-0382
29. Huang, H. C., Lin, T. H., Lai, M. C., & Lin, T. L. (2014). Environmental consciousness and green customer behaviour: An examination of motivation crowding effect. *International Journal of Hospitality Management, 40,* 139–149. https://doi.org/10.1016/j.ijhm.2014.04.006
30. Huang, Y. C., & Liu, C. H. S. (2017). Moderating and mediating roles of environmental concern and eco-tourism experience for revisit intention. *International Journal of Contemporary Hospitality Management*. *29*(7), 1854-1872. https://doi.org/10.1108/IJCHM-12-2015-0677
31. Hur, W. M., Yoo, J. J., & Chung, T. L. (2012). The consumption values and consumer innovativeness on convergence products. *Industrial Management & Data Systems*. *112*(5), 688-706. https://doi.org/10.1108/02635571211232271

32. İçlek, G., & Gül, A. (2021). *Ayazini Örenyeri Kültürel Miras Değerlerinin GZFT Analizi ile Değerlendirilmesi.* Co-Editors, 194.
33. Jamrozy, U., & Lawonk, K. (2017). The multiple dimensions of consumption values in eco-tourism. *International Journal of Culture, Tourism and Hospitality Research*, 11(1), 18-34. https://doi.org/10.1108/IJCTHR-09-2015-0114
34. Jiang, M., Wang, H., & Li, M. (2019). Linking empowering leadership and organizational citizenship behaviour toward environment: The role of psychological ownership and future time perspective. *Frontiers in psychology*, *10*, 2612. https://doi.org/10.3389/fpsyg.2019.02612
35. Kirk, C.P., Peck, J. & Swain, S.D. (2018). Property lines in the mind: consumers' psychological ownership and their territorial responses. Journal of Consumer Research, *45*, 148-168. https://doi.org/10.1093/jcr/ucx111
36. Kreps, C. F. (2008). Appropriate museology in theory and practice. *Museum Management and Curatorship*, *23*(1), 23-41. https://doi.org/10.1080/09647770701865345
37. Kuo, H. M., Su, J. Y., Wang, C. H., Kiatsakared, P., & Chen, K. Y. (2021). Place attachment and environmentally responsible behaviour: The mediating role of destination psychological ownership. *Sustainability*, *13*(12), 6809. https://doi.org/10.3390/su13126809
38. Lange, F., & Dewitte, S. (2019). Measuring pro-environmental behaviour: Review and recommendations. *Journal of Environmental Psychology*, *63*, 92-100. https://doi.org/10.1016/j.jenvp.2019.04.009
39. Lee, C. K., Olya, H., Ahmad, M. S., Kim, K. H., & Oh, M. J. (2021). Sustainable intelligence, destination social responsibility, and pro-environmental behaviour of visitors: Evidence from an eco-tourism site. *Journal of Hospitality and Tourism Management*, *47*, 365-376. https://doi.org/10.1016/j.jhtm.2021.04.010
40. Lee, J. S., Hsu, L. T., Han, H., & Kim, Y. (2010). Understanding how consumers view green hotels: how a hotel's green image can influence behavioural intentions. *Journal of sustainable tourism*, *18*(7), 901-914. https://doi.org/10.1080/09669581003777747
41. Lemelin, H., Dawson, J., Stewart, E. J., Maher, P., & Lueck, M. (2010). Last-chance tourism: The boom, doom, and gloom of visiting vanishing destinations. *Current Issues in Tourism*, *13*(5), 477-493. https://doi.org/10.1080/13683500903406367
42. Lien, Y. H., Wu, T. M., Wu, J. H., & Liao, J. W. (2011). Cytotoxicity and drug release behaviour of PNIPAM grafted on silica-coated iron oxide nanoparticles. *Journal of Nanoparticle Research*, *13*(10), 5065-5075. https://doi.org/10.1007/s11051-011-0487-8
43. Lin, H., Zhao, Y., Ožbolt, J., & Hans-Wolf, R. (2017). The bond behaviour between concrete and corroded steel bar under repeated loading. *Engineering Structures*, *140*, 390-405. https://doi.org/10.1016/j.engstruct.2017.02.067

44. Lin, S. T., & Niu, H. J. (2018). Green consumption: E nvironmental knowledge, environmental consciousness, social norms, and purchasing behaviour. *Business Strategy and the Environment*, *27*(8), 1679-1688. https://doi.org/10.1002/bse.2233
45. Liu, J., Qu, H., Huang, D., Chen, G., Yue, X., Zhao, X., & Liang, Z. (2014). The role of social capital in encouraging residents' pro-environmental behaviours in community-based eco-tourism. *Tourism Management*, *41*, 190-201. https://doi.org/10.1016/j.tourman.2013.08.016
46. Miller, D., Merrilees, B., & Coghlan, A. (2015). Sustainable urban tourism: understanding and developing visitor pro-environmental behaviours. *Journal of Sustainable Tourism*, *23*(1), 26-46. https://doi.org/10.1080/09669582.2014.912219
47. Miller, L. B., Hallo, J. C., Dvorak, R. G., Fefer, J. P., Peterson, B. A., & Brownlee, M. T. (2020). On the edge of the world: Examining pro-environmental outcomes of last chance tourism in Kaktovik, Alaska. *Journal of Sustainable Tourism*, *28*(11), 1703-1722. https://doi.org/10.1080/09669582.2020.1720696
48. Muralidharan, S., & Sheehan, K. (2018). The role of guilt in influencing sustainable pro-environmental behaviours among shoppers: Differences in response by gender to messaging about England's plastic-bag levy. *Journal of Advertising Research*, *58*(3), 349-362. https://doi.org/10.2501/JAR-2017-029
49. Namkung, Y., & Jang, S. S. (2013). Effects of restaurant green practices on brand equity formation: Do green practices really matter?. *International Journal of Hospitality Management*, *33*, 85-95. https://doi.org/10.1016/j.ijhm.2012.06.006
50. Nunnally, J., & Bernstein, I. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
51. Paswan, A., Guzmán, F., & Lewin, J. (2017). Attitudinal determinants of environmentally sustainable behaviour. *Journal of Consumer Marketing*, *34*(5), 414-426. https://doi.org/10.1108/JCM-02-2016-1706
52. Pierce, J. L., Kostova, T., & Dirks, K. T. (2001). Toward a theory of psychological ownership in organizations. *Academy of management review*, *26*(2), 298-310. https://doi.org/10.5465/amr.2001.4378028
53. Piggott-McKellar, A. E., & McNamara, K. E. (2017). Last chance tourism and the Great Barrier Reef. *Journal of Sustainable Tourism*, *25*(3), 397-415. https://doi.org/10.1080/09669582.2016.1213849
54. Ramaswamy, S., & Kumar, S. G. (2010). Tourism and Environment: Pave the Way for Sustainable Eco-Tourism. *Tourism and Environment: Pave the Way for Sustainable Eco-Tourism (March 5, 2010)*. https://dx.doi.org/10.2139/ssrn.1565366
55. Ramkissoon, H. (2020). COVID-19 Place confinement, pro-social, pro-environmental behaviours, and residents' well-being: A new conceptual framework. *Frontiers in Psychology*, *11*, 2248. https://doi.org/10.3389/fpsyg.2020.02248

56. Rashid, A. A., Ghazali, S. S., Mohamad, I., Mawardi, M., Musa, H., & Roslan, D. (2020). The effectiveness of a Malaysian House Officer (HO) preparatory course for medical graduates on self-perceived confidence and readiness: A quasi-experimental study. *PloS one*, *15*(7), e0235685. https://doi.org/10.1371/journal.pone.0235685

57. Ren, X., Li, J., He, F., & Lucey, B. (2023). Impact of climate policy uncertainty on traditional energy and green markets: Evidence from time-varying granger tests. *Renewable and Sustainable Energy Reviews*, *173*, 113058. https://doi.org/10.1016/j.rser.2022.113058

58. Runge, C. A., Daigle, R. M., & Hausner, V. H. (2020). Quantifying tourism booms and the increasing footprint in the Arctic with social media data. *PloS one*, *15*(1), 0227189. https://doi.org/10.1371/journal.pone.0227189

59. Sanchez, J., Callarisa, L., Rodriguez, R. M., & Moliner, M. A. (2006). Perceived value of the purchase of a tourism product. *Tourism management*, *27*(3), 394-409. https://doi.org/10.1016/j.tourman.2004.11.007

60. Sharma, K., & Bansal, M. (2013). Environmental consciousness, its antecedents and behavioural outcomes. *Journal of Indian Business Research*, *5*(3), 198-214. https://doi.org/10.1108/JIBR-10-2012-0080

61. Souza, J. D. L., Tondolo, V. A. G., Sarquis, A. B., Longaray, A. A., Tondolo, R. D. R. P., & Costa, L. M. D. (2020). Effect of perceived value, risk, attitude and environmental consciousness on the purchase intention. *International Journal of Business Environment*, *11*(1), 11-31. https://doi.org/10.1504/IJBE.2020.105466

62. Stefănica, M., & Butnaru, G. I. (2015). Research on tourists' perception of the relationship between tourism and environment. *Procedia Economics and Finance*, *20*, 595-600. https://doi.org/10.1016/S2212-5671(15)00113-6

63. Suki, N. M., & Suki, N. M. (2015) Consumption values and consumer environmental concern regarding green products. *International Journal of Sustainable Development & World Ecology, 22*(3), 269-278. https://doi.org/10.1080/13504509.2015.1013074

64. Süssenbach, S., & Kamleitner, B. (2018). Psychological ownership as a facilitator of sustainable behaviours. In *Psychological ownership and consumer behaviour* (pp. 211-225). Springer, Cham.

65. Thøgersen, J. (2014). The mediated influences of perceived norms on pro-environmental behaviour. *Revue d'économie politique*, *124*(2), 179-193.

66. Thøgersen, J., & Crompton, T. (2009). Simple and painless? The limitations of spillover in environmental campaigning. *Journal of Consumer Policy*, *32*(2), 141-163. https://doi.org/10.1007/s10603-009-9101-1

67. Tsai, M. T., Chuang, L. M., Chao, S. T., & Chang, H. P. (2012). The effects assessment of firm environmental strategy and customer environmental conscious on green product development. *Environmental Monitoring and Assessment*, *184*(7), 4435-4447. https://doi.org/10.1007/s10661-011-2275-4

68. Xie, X., Qin, S., Gou, Z., & Yi, M. (2020). Can Green Building Promote Pro-Environmental Behaviours? The Psychological Model and Design Strategy. *Sustainability*, *12*(18), 7714. https://doi.org/10.3390/su12187714

69. Xu, Z., Yang, G., Wang, L., Guo, L., & Shi, Z. (2022). How does destination psychological ownership affect tourists' pro-environmental behaviours? A moderated mediation analysis. *Journal of Sustainable Tourism*, 1-19. https://doi.org/10.1080/09669582.2022.2049282

70. Yang, M. X., Tang, X., Cheung, M. L., & Zhang, Y. (2021). An institutional perspective on consumers' environmental awareness and pro-environmental behavioural intention: Evidence from 39 countries. *Business Strategy and the Environment*, *30*(1), 566-575. https://doi.org/10.1002/bse.2638

71. Yu, T. Y., & Yu, T. K. (2017). The moderating effects of students' personality traits on pro-environmental behavioural intentions in response to climate change. *International Journal of environmental research and public health*, *14*(12), 1472. https://doi.org/10.3390/ijerph14121472

72. Yükselen, C., & Güler, G. E. (2009). Antakya marka kent görüş ve öneriler. *Detay Yayıncılık, Ankara*.

73. Zhang, W., Xiao, S., Samaraweera, H., Lee, E. J., & Ahn, D. U. (2010). Improving functional value of meat products. *Meat science*, *86*(1), 15-31. https://doi.org/10.1016/j.meatsci.2010.04.018

74. Zheng, Y. (2010). Association analysis on pro-environmental behaviours and environmental consciousness in main cities of East Asia. *Behaviourmetrika*, *37*(1), 55-69. https://doi.org/10.2333/bhmk.37.55