Pak. j. life soc. Sci. (2024), 22(2): 9263-9281 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences

www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.2.00701

RESEARCH ARTICLE

Influence of Landscape Value on Urban Residents' Environmental Behavior in Henan, China: Mediating Role of Place Attachment

Xiaohui Guo[1*], Ali Khatibi[2], Jacquline Tham[3]

[1,2,3] Postgraduate Centre, Management and Science University, University Drive, Off Persiaran Olahraga, Section 13, 40100 Shah Alam, Malaysia

[1] Shangqiu Normal University, No. 55 Pingyuan Road, Shangqiu City, Henan Province, China

ARTICLE INFO

Received: Aug 15, 2024

Accepted: Oct 22, 2024

Keywords

Landscape perceived value

Place attachment

Environmentally responsible behavior

Urban green spaces

***Corresponding Author**

guougo15136072013@163.com

ABSTRACT

This study is based on the Stimulus-Organism-Response theory, analyses the environmental responsibility behavior of urban residents in urban green spaces such as parks, squares, and street green spaces in Henan Province, China, by reviewing relevant literature. It provides scientific evidence for urban green space management by sorting out the relevant literature and analyzing the environmental responsibility behavior of urban residents in urban green spaces. By collecting and analyzing 558 valid questionnaires from representative cities in Henan Province, this study builds a mechanism model to explain the impact of urban residents' environmental responsibility behavior and places emphasis on the mediating role of place attachment. The structural equation model is used to empirically verify the theoretical model. The results show that all the measured dimensions of the perception of value, including scenic value, service value, experience value, cultural value, and cost value, have significant positive effects on environmental responsibility behavior and place attachment. Furthermore, place attachment (path coefficient of 0.469) also has a significant positive effect on environmental responsibility behavior. It is noteworthy that place attachment plays an important mediating role in the relationship between the perception of value and environmental responsibility behavior. Therefore, by enhancing urban residents' Perceived Value in urban green spaces, we can further enhance their sense of attachment to the place and stimulate their participation in environmental protection actions on a voluntary basis.

1. INTRODUCTION

While industrialization and globalization have brought about economic prosperity and improved living standards, China has also been suffering from ecological and environmental problems such as deforestation, serious urban sprawl and atmospheric pollution.(Foley et al., 2005; Gao et al., 2019; Liu et al., 2017). At the same time, climate change and biodiversity conservation are currently two of the world's most topical environmental issues.(Wei et al., 2021). Urban green spaces provide a wide range of ecosystem services to urban residents, in particular to older persons, by providing space for physical activity and social interaction, and are spatial carriers of health and well-being, and are therefore considered to be an important component of socio-environmental justice (Enssle & Kabisch, 2020). In particular, vegetation in urban green spaces regulates microclimate, filters air pollutants, buffers noise and mitigates urban flooding, among other things, and these ecosystem regulating services promote healthy behaviours among urban dwellers, as well as providing places for recreation, exercise, relaxation, enjoyment of, and learning about, nature and social interaction, thereby increasing social cohesion(Aram et al., 2019; Grote et al., 2016; Markevych et al., 2017; Venkataramanan et al., 2019). However, with the expansion of population scale triggered by the

process of urbanization, China's urban green space construction has inevitably been negatively affected by the irresponsible environmental behaviour of urban residents, resulting in a more serious problem of ecological damage to green space.

Scholars believe that people's environmentally responsible behavior is an important driving factor in maintaining the sustainable development of travel destinations, and that there is a symbiotic relationship with ecological protection. Environmentally responsible behaviour not only directly reduces the level of environmental damage to destinations, but also effectively controls the costs of ecological restoration and management of destinations.(Bramwell, 1994; Perkins & Brown, 2012). Exploring the factors and paths affecting environmentally responsible behavior and strengthening the guidance of urban residents' environmentally responsible behavior has now become a real problem to be solved in urban green space management.

To stimulate the environmental responsibility behaviour of urban residents and promote the sustainable development of urban green space, more and more scholars have begun to pay attention to the environmental responsibility behaviour of urban residents, and the current research on environmental responsibility behaviour mainly focuses on three aspects:(1)A Study on Dimensional Measurement and Scale Development of Environmentally Responsible Behaviour(Lee et al., 2013)；(2)Research on the mechanism of environmentally responsible behaviour(Xu et al., 2021)；(3) Research on factors influencing environmentally responsible behaviour(Gifford & Nilsson., 2014).Among them. Sociology, psychology is crucial to the study of environmentally responsible behaviour (Ahmad et al., 2021)，Some scholars have explored the relationship between the role of place attachment in influencing environmentally responsible behaviour from a place attachment perspective(Daryanto & Song, 2021; Kuo et al., 2021)Williams (1989) first introduced place attachment into the field of recreation and leisure, defining it as the emotional, cognitive and practical connections that arise from an individual's interaction with a place. Research has confirmed that place attachment can significantly influence recreationists' environmentally responsible behaviour (Wan et al., 2021).Individuals tend to develop an emotional connection and psychological identity with spatial environments that they are frequently exposed to (Dandotiya & Aggarwal, 2023).Altman et al. (1992)point out that when incorporating place attachment into the study of environmentally responsible behaviour, it is important to focus not only on individual factors, but also to consider the qualities of the place itself. The environment is not necessarily a landscape, but a landscape is an environment that can be perceived by people. Therefore, the landscape is the core attraction of the urban green environment, and the landscape is also the most direct element that residents feel is the urban green environment. The perception of the landscape affects the environmental emotions and behaviors of urban residents (Wartmann et al., 2021). However, the existing research results in China do not consider what kind of landscape environment can have an impact on environmentally responsible behaviours, although most of the current research is conducted from the cognitive level, and the role of emotional factors in its formation is less considered or even completely ignored (Menatti et al., 2019; Rollero & De Piccoli, 2010).Research has shown that environmentally responsible behaviour when environmental affective factors are dominant promotes individuals' proactive protection of the local environment more significantly(Zhang et al., 2020)，Compared to passive compliance with environmental regulations has a positive active willingness and stability of behaviour, which is very important for the sustainable development of urban green space environment.

Based on this, this study integrates the theory of landscape perception and the theory of perceived value to extract predictor variables and combines the theory of place attachment to build a structural relationship model based on the stimulus-organism-response framework, in order to conduct a thorough discussion on the influencing factors and the action mechanism of urban residents' environmental responsibility behavior. The innovative points of this study mainly lie in both theoretical and methodological aspects. On the theoretical level: (1) Previous studies have concentrated on the specific analysis of specific spatial environments, while this study innovatively conducts a macroscopic discussion on the entire urban green space environment, thus expanding the dimension of urban residents' landscape perception value to some extent, aiming to promote the impact of environmental responsible behavior based on landscape perception and further optimism and improve relevant theoretical models. (2) Based on urban residents' landscape perception, this

study introduces the non-rational factor of place attachment, opening a new path for exploring the influencing factors of environmental responsibility behavior from a rational-emotional perspective, which has important theoretical value for verifying the application of the stimulus-organism-response theory in the study of environmental responsibility behavior.

On the methodological level:

1. This study conducted an empirical analysis using exploratory factor analysis combined with structural equation modeling to verify relevant hypotheses and, to some extent, filled the gap in the study of the influencing factors of residents' environmental responsibility behavior in urban green spaces.
2. Urban green spaces are important venues for residents' daily activities, and their use behavior has significant impact on urban development. However, previous studies on urban green spaces have mostly focused on technical aspects and have been mainly advocated by the government, with planning and design personnel and construction workers taking the lead, using modern remote sensing technology and engineering means to plan and design green space landscapes, spatial layout, and park accessibility (Hua et al., 2023; Sun et al., 2020; (Yang et al., 2021), but there have been few studies from the perspective of human behavior. In this study, urban green spaces are chosen as the research object, which has important practical significance for the current urban human settlement environment construction and the promotion of urban green space development, thereby promoting the improvement of urban management.

2. THE REVIEW OF LITERATURE

Stimulus-organism-response theory

Mehrabian and Russell (1974) constructed the "stimulus-organism-response" theoretical model from the perspective of environmental psychology. This theory places the organism, i.e. the psychological and emotional state of the stimulated object, at the center, and believes that the process from stimulus to response is not a simple mechanical connection but is mediated by the internal perception of the organism, thereby prompting the stimulated individual to engage in approach or avoidance behavior. In this model, the stimulus (S) refers to the objective environmental factors that stimulate an individual to engage in behavior; the organism (O) refers to the internal processing and emotional response experienced during the transformation of the stimulus into final behavior; and the response (R) represents the final approach or avoidance behavior made by the stimulated individual. Therefore, the complete pathway for people to generate behavior is external stimulus - cognitive/emotional mediator - behavioral response. The SOR theory describes this complete process. Based on this, this study constructs a theoretical research model of landscape perception value, place attachment, and environmental responsibility behavior for urban residents, and believes that urban residents' implementation of environmental responsibility behavior in green spaces is the result of the joint action of their own emotional responses and the environmental factors of green spaces. Specifically, residents' perception of the landscape of urban green spaces as an external stimulus variable (S) influences their emotions through place attachment and place identification, thereby enhancing their attachment and protective consciousness of the green space environment and promoting their external environmental action (R).

Perceived value theory

Zeithaml (1988) pointed out that perceived value is the consumer's overall evaluation of the usefulness of the products or services provided, and a balance between what they receive and what they pay. He categorized perceived value into five dimensions: intrinsic attributes, extrinsic attributes, perceived quality, price (including monetary and non-monetary costs), and other related higher-level abstract attributes. This research was groundbreaking and had a significant impact on the development of customer value theory, with its core ideas profoundly influencing the empirical studies of many scholars. Monroe (1990) believed that perceived value is the consumer's subjective measure of gains versus losses, and his view was very similar to Zeithaml's definition, but explicitly defined perceived costs as the product price. Anderson et al. (1992) believed that perceived value is the consumer's subjective utility of the price of the product or service they have purchased, which is

manifested in social benefits, economic benefits, and technical services, and is a subjective experience. Holbrook (1994) further proposed that perceived value is the consumer's subjective feeling about the product they have purchased or the purchasing process. Parasuraman (1997) stressed that in the purchasing process, consumers weigh the benefits they perceive against the costs. In academia, research on the dimensions of customer perceived value can be broadly divided into two viewpoints: the single-dimensional construct view and the multi-dimensional construct view. Hunt et al. (1995) believed that perceived value is the customer's evaluation of the quality of the consumption product, and therefore belongs to the single-dimensional construct view; while Sheth (1991) explored the constituent elements from multiple dimensions such as function, emotion, social, cognitive, and context. Furthermore, Wood & Scheer (1996) proposed the concept of "perceived gains" and "perceived losses," while Sweeney & Soutar (2001) summarized customer perceived value into functional value, social value, emotional value, and their corresponding costs. This study draws on the important findings of previous research on perceived value and combines the characteristics of urban green spaces to divide the perceived value in the landscape perspective into scenic value, service value, experience value, cultural value, and cost value, which provides a solid theoretical foundation for the conceptual framework of this paper.

Landscape perception theory

Ervin Zuber proposed a landscape perception model that unifies people, landscape, and the results of their interactions into a closed loop. He believed that landscape perception is a dynamic process that includes three elements: people, landscape, and the results of their interactions. It is a function of human-landscape interaction (Ervin, 1982). Based on the landscape perception process model, Ervin Zuber analyzed relevant literature and experiments to identify four general paradigms of landscape perception research: the expert paradigm, the psychophysical paradigm, the cognitive paradigm, and the experiential paradigm. The expert paradigm emerged earlier and was conducted by trained professionals who evaluated the visual characteristics of landscapes and made evaluative descriptions based on principles of art, design, and ecology, and fed the evaluation results back into the management and utilization of landscape resources. The psychophysical paradigm utilized the "stimulus-response" model to link people's emotional responses to the basic physical properties of landscapes. The cognitive paradigm focused on finding meaning and value associated with landscape attributes and typically treated the mystery, legibility, complexity, and coherence of landscapes as independent variables. The experiential paradigm, on the other hand, viewed landscape value as a product of human-landscape interaction. The role played by humans in the four paradigms gradually shifted from passive perception in the expert mode to active influence in the experiential mode, and the landscape environment also shifted from being deceptively perceived and interpreted to being considered (Ervin, 1984). This study focuses on landscape, which is essentially the core "product" of urban green environments and combines the landscape perception values of urban residents with urban green environments to serve as an initial exploration of the impact of landscape perception values on residents' environmental responsibility behavior in the field of urban planning and construction.

Place attachment

Place attachment refers to "the connection between people and places" (Low & Altman, 1992, p. 2), a concept that has been used to describe the phenomenon of forming emotional ties between people and the physical environment (Inalhan et al., 2021). Different scholars have defined place attachment from multiple dimensions. As an emotional bond between people and the land, place attachment can be supplemented by functional connections, while people's dependence on the functions provided by the landscape can further strengthen this emotional connection. Lowenthal (1978) proposed the concept of landscape attachment and pointed out that individuals are emotionally more inclined to attach to specific types of landscapes rather than specific locations. Vaske et al. (2001) emphasized that the landscape is an important foundation for place attachment, and that residents continuously strengthen their place attachment through interactions with the landscape, thereby establishing deeper emotional connections. Therefore, this study integrates landscape perception theory and perceived value theory to explore the influencing factors of urban residents' environmental responsibility behavior based on the two dimensions proposed by Williams et al.: place Identity (emotional dependence) and place dependence (functional dependence).

Environmentally responsible behaviour

Environmentally responsible behavior (ERB) generally refers to people's spontaneous reduction in the use of natural resources or promotion of their sustainable use (Sivek & Hungerford, 1990). Through a review of relevant literature, researchers, based on their different disciplinary backgrounds and theoretical perspectives, have used various terms to represent individual and group behaviors that protect the ecological environment. These related research terms include environmental responsibility behavior (Wang et al., 2019), pro-environmental behavior (Tkaczynski et al., 2020), environmental behavior (Soares et al., 2021; Yusliza et al., 2020), eco-behavior (Dolnicar, 2020), sustainable behavior (Parmentola et al., 2022), and green behavior (Al-Swidi et al., 2021). In summary, there is no uniform standard in terms of terminology in current literature, and there is not widely accepted and applied unified terminology. This study draws on the above research and classifies environmental responsibility behavior into compliance and proactive types and introduces it into the context of urban green spaces, with the aim of providing a theoretical basis and practical reference for sustainable development studies centered on urban green spaces.

3. THEORETICAL ANALYSIS FRAMEWORK AND RESEARCH METHODOLOGY

3.1 Theoretical analytical framework

Landscape perceived values and environmentally responsible behaviour

The role of perceived value in influencing environmental responsibility behavior has been a subject of much attention. Based on the stimulus-emotion-behavior theory, Kong et al. (2019) conducted a questionnaire survey on tourists in Jiangning District, Nanjing City, and found that rural landscape perception is the most important factor influencing tourists' proactive environmental responsibility behavior. Liu et al. (2021), in studying the influence relationship between park recreationists' environmental responsibility behavior, found that landscape perception not only can directly affect environmental responsibility behavior but also can indirectly affect it through place attachment. Zhang et al. (2020) conducted a survey with 327 effective questionnaires based on the theory of planned behavior and perceived value, and the results showed that the quality, price, emotional, and environmental values perceived by consumers would significantly influence their purchase attitudes and payment behavior. Nuhadriel & Keni (2022) conducted an empirical analysis among 163 online streaming service users, and the results showed that perceived value has a significant positive impact on subscription behavior. CF Kennedy (2023) used structural equation modeling (SEM) and partial least squares (PLS) to analyze data from 271 tourists in five Indonesian super priority destinations, and the results showed that perceived value significantly influences tourists' environmental responsibility behavior. Amado et al. (2023) used structural equation modeling to analyze 484 questionnaires collected from students at the University of Colombia, and the results showed that students' perceived value would influence their job performance. Therefore, we propose Hypothesis H1.

H1: *There is a relationship between landscape aesthetic value and environmental responsibility behavior.*

Landscape perceived values and place attachment

Personal perception plays a crucial role in the formation of attachment, and the place attachment of tourists is based on cognitive processes such as perception, memory, and association of various landscapes in tourist destinations (Brown et al., 2006). As an emotional bond between people and the environment, the emotional identification and functional dependence in place attachment can be transformed into each other. Research has shown that perceived value is an important driver of place attachment, but the degree of influence of different dimensions of perceived value on place attachment varies. Zhang et al. (2019) took three rural tourism destinations in LiKang， Jianggan and Huangning in Wuyuan, Jiangxi as research objects, and divided perceived value into six dimensions: functional value, service value, environmental value, emotional value, brand value, and cost value. Through empirical analysis, they proved that tourists' high evaluation of tourist destinations would enhance their place attachment. Wang (2020) conducted a survey on ethnic minority villagers in a cultural town when conducting research, and divided perceived value into scenic value, cultural value, and economic value. He proved that residents would form functional

dependence and emotional identification when evaluating the landscape of the cultural town. In the consumption field, Petravičiūtė et al. (2021) used quantitative methods to conduct an online survey of Lithuanian luxury brand consumers to determine the relationship between perceived value of luxury brands, brand attachment, and consumers' purchase intentions and vanity. Data analysis showed that the influence factor of the experiential value was 0.524, indicating that a higher perceived experience would lead to stronger brand dependence. In a study on the destination attractiveness held by Z-generation tourists and its relatedness, 286 effective data were analyzed using partial least squares structural equation modeling, and the results showed that emotional value, cognitive value, green value, and safety value all had a positive impact on destination attractiveness (Jiang et al.， 2021). Based on this, the following hypothesis is proposed.

H2: *There is a relationship between landscape aesthetic value and place attachment.*

Place attachment and environmentally responsible behaviour

Place attachment has been proven to effectively explain the relationship between people and the environment. Many studies have shown that residents who develop a sense of attachment to their place are more likely to engage in pro-environmental behaviors. Wu et al. (2021) analyzed the data of 513 potential visitors to the Sanjiangyuan National Park and proved that place attachment has a positive impact on self-regulatory behavior. Yang (2022) showed in a model based on the theory of place attachment that place attachment has a significant positive impact on environmental responsibility behavior. Nasr et al. (2022), based on the stimulus-organism-response theory, studied 375 residents in Ghana as the research subjects, and the results showed that residents' community attachment is positively correlated with environmental responsibility behavior (ERB). Zhang (2023) constructed an intermediate model based on attitude-behavior theory, place theory, and psychological ownership theory, in which two dimensions of place attachment exert an indirect positive impact on environmental management behavior (EMB) through psychological ownership. The results show that the two dimensions of place identification and place dependence can have a positive direct impact on EMB. Winton (2023) analyzed 368 resident data from the Mississippi Gulf Coast and found that residents who have a strong attachment to their place exhibit positive environmental responsibility behavior and supportive actions for sustainable development. Therefore, Hypothesis H11 is proposed.

H3: *There is a relationship between place attachment and environmental responsibility behavior.*

The mediating role of place attachment

In the study of environmental responsibility behavior influencing factors, place attachment, an important mediating variable, is receiving increasing attention from scholars. Zhang et al. (2020) analyzed the data of 516 visitors to Olympic Forest Park in Beijing and, through empirical analysis, verified the mediating role of place attachment between perceived value and environmental responsibility behavior (ERB). Cheng et al. (2021) analyzed the data of visitors to six famous tourist sites in Shaanxi, China, and confirmed that service quality, as a perceived factor, can enhance environmental responsibility behavior through place attachment. Xu et al. (2022) conducted empirical analysis on 498 valid questionnaires from visitors to forest parks and found that place attachment can affect the role of experiential value in environmental responsibility behavior. While there are relatively fewer studies on the mediating role of place attachment between perceived value and environmental responsibility behavior abroad, based on the previous literature review, this study hypothesizes that place attachment has a mediating effect, which is universal, and thus proposes Hypothesis H4.

H4: Place attachment mediates the relationship between landscape perceived values and environmental responsibility behavior.

3.2 Theoretical model framework

According to the Environmental Psychology Stimulus(S)-Organism(O)-Response(R) Theory, when an individual receives an external stimulus (S), it can stimulate the individual's emotion (O), which in turn generates a corresponding response(R)etc. Individual perception often determines the form of emotion, and together with the form of emotion, it determines the emotional state, to respond and

feedback to the stimulus. Therefore, the urban green land landscape environment is a stimulating factor, through the landscape perception on the individual and produce place attachment, and then cause the individual's environmental responsibility behaviour. Combined with the above theoretical assumptions, this paper constructs the structural relationship model of "landscape perceived value→ place attachment → environmentally responsible behaviour", as shown in Figure 1.

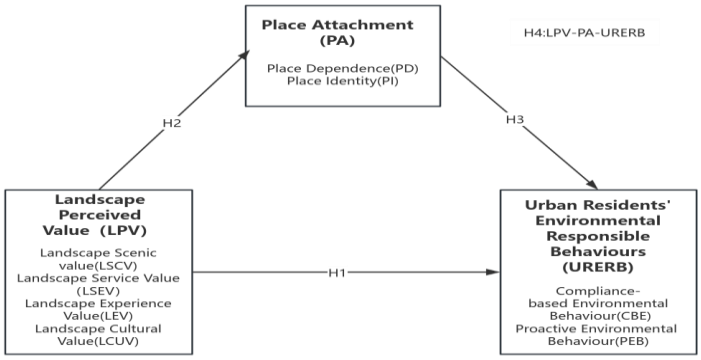

Figure 1: Conceptual framework

3.3 Research methodology

This paper aims to conduct an empirical analysis on the relationship model between urban residents' landscape perception value and their environmental responsibility behavior, using a quantitative research method. To better handle the mutual relationships between multiple variables in different dimensions, this paper selects exploratory factor analysis and structural equation modeling as the main research methods. The specific steps are as follows: First, data was collected through a pre-survey questionnaire, and the dimensions of landscape perception value were classified using exploratory factor analysis. A measurement scale for landscape perception value was then constructed and a formal questionnaire was designed. Second, data was collected through a formal survey, and descriptive statistical analysis and reliability tests were conducted on the scale and sample basic characteristics using SPSS 24.0 software. Finally, the scale was validated in terms of validity using AMOS 24.0 software, and the structural relationship model was verified.

4. DATA SOURCES AND ANALYSIS OF SAMPLE DATA

4.1 Questionnaire design and measurement of variables

The survey questionnaire consists of four parts: social demographic information, landscape perception value scale, place attachment scale, and environmental responsibility behavior scale. All variables in the questionnaire use the Likert five-point scale (1 = completely disagree, 5 = completely agree). The measurement of perceived value references the research of Wang et al. (2020), Li (2018), and Brown et al. (2012); the measurement of place attachment references the research of Liu et al. (2021), Fan Jun et al. (2014), and Williams et al. (1992); the measurement of environmental responsibility behavior references the research of Liu et al. (2021), Qiu Mengyong et al. (2017), Ramkisson et al. (2012), and Qiu (2016), thus forming the initial questionnaire. A total of 173 questionnaires were distributed for pre-survey. After examination, the KMO value was 0.876, which exceeds the standard requirement of 0.7 (Wu, 2003).

Bartlett's sphericity test had a significance of 0.00 < 1%, indicating that factor analysis was appropriate. The validity test showed that the extraction values of all indicator items were greater than 0.6, and the loading coefficients of all factor loadings were greater than 0.65, which met the standard. The perceptual value of landscape was extracted through exploratory factor analysis using principal component analysis and Kaiser normalization maximum variance method, resulting in a total of 5 common factors, with a cumulative variance contribution rate of 63.806%. After adjusting and modifying the questionnaire based on the pre-survey results, the final questionnaire was formed.

4.2 Data collection

The time of this research survey is June-July2024, the use of questionnaire star online survey, select the representative cities of Henan Province Zhengzhou, Luoyang, Nanyang, Shangqiu, Pingdingshan,

Kaifeng, Luohe to collect questionnaire data. The main target of the survey is the permanent residents of the cities. A total of 700 questionnaires were distributed in this survey, and 558 of them were valid questionnaires after being collected and sorted out, and the recovery rate of valid questionnaires was 79. 71%.71 per cent.

4.3 Data analysis

4.3.1 Basic characterization of the sample

Statistical analysis of the valid samples obtained, as shown in Table 1, which shows the results of the frequency distribution of the demographic characteristics of this questionnaire, reveals the following: there is a difference in the proportion of male and female respondents, with males accounting for 61.5 per cent of the total, while females accounted for 38.5 per cent.In terms of age distribution, 31-40 years old is the main group of respondents, accounting for 47.7 per cent, followed by the group of 20-30 years old, accounting for 25.69 per cent. the group of 41-50 years old accounted for 23.8 per cent, while the proportion of respondents over 50 years old is the lowest, at only 3 per cent. The education level of the respondents shows a high concentration, with 40.3% of the respondents having a bachelor's degree, and the lowest proportion of master's degree and above, accounting for 4.69%.In terms of income distribution, the income range of 2001-4000 RMB is the most dominant group, accounting for 33. 5%, and the proportion of respondents with incomes of more than 10000 RMB is relatively low, accounting for only 5.2%. In terms of occupational distribution, respondents working full-time dominated, accounting for 64.3 per cent, while self-employed persons accounted for only 7.3 per cent.

Overall, the 558 respondents of this survey show significant differences in terms of gender, age, education level, income and occupation, providing a diversified sample base that can help to further analyse the views and behaviours of different groups on related issues.

Table 1: Frequency analysis of demographic characteristics

Category	Items	Frequency	Percent (%)	Cumulative Percent (%)
Gender	Female	343	61.5	61.5
	Male	215	38.5	100
Age	20 – 30 years old	142	25.4	25.4
	31 – 40 years old	266	47.7	73.1
	41 – 50 years old	133	23.8	97
	51 years old and above	17	3	100
Education Level	Diploma and below	75	13.4	13.4
	High School/Vocational School/Technical School	144	25.8	39.2
	Associate's degree	87	15.6	54.8
	Bachelor's degree	225	40.3	95.2
	Masters & PhD	27	4.8	100
Monthly Income	Less than RM2,000	104	18.6	18.6
	RM2001 – RM4,000	187	33.5	52.2
	RM4,001 – RM6,000	119	21.3	73.5
	RM6,001 – RM8,000	78	14	87.5
	RM8,001 – RM10,000	41	7.3	94.8
	More than RM 10,000	29	5.2	100
Profession	Full time employment	359	64.3	64.3
	Part time employment	55	9.9	74.2
	Student	103	18.5	92.7

	Self-employed (own business	41	7.3	100
Total		558	100.00	100.00

4.3.2 Descriptive statistical analysis of sample data

The valid sample data obtained were collated and analyzed, and the scale was scored using a 5-point Likert scale, in which values of 1, 2, 3, 4, and 5 were assigned according to Strongly Disagree, Comparatively Disagree, Fairly Agree, Comparatively Agree, and Strongly Agree, respectively. Descriptive statistical analyses of the data for each of the variable dimensions of the questionnaire scales are shown in Table 2.

As can be learnt from Table 2, the mean value of each question item in the five dimensions of perceived value of landscape is between 3.77 and 3.92, indicating that the respondents hold a moderately high appraisal of the different perceived values of the landscape, with a slightly higher mean value for the value of landscape services, indicating that the Urban residents. The mean values of the two dimensions of place attachment ranged from 3.87 to 3.99, indicating that the place attachment of urban residents is at a high level; the mean values of the compliance environmental responsibility behaviours ranged from 3.91 to 3.98, and the mean values of the proactive environmental responsibility behaviours ranged from 3.84 to 3.95, indicating that the overall level of compliance environmental responsibility behaviours is higher than that of proactive environmental responsibility behaviours. This indicates that the overall level of the compliance type of environmental responsibility behaviour is higher than that of the proactive type.

Table 2: Descriptive statistics

Variables	Dimensions	N	Minimum	Maximum	Mean	Std. Deviation
Urban Residents' Environmental Responsible Behaviours (URERB)	**Compliance-based Environmental Behaviour(CBE)**	CEB1	1	5	3.91	1.229
		CEB2	1	5	3.96	1.227
		CEB3	1	5	3.95	1.191
		CEB4	1	5	3.98	1.184
	Proactive Environmental Behaviour(PEB)	PEB1	1	5	3.84	1.219
		PEB2	1	5	3.85	1.212
		PEB3	1	5	3.87	1.261
		PEB4	1	5	3.86	1.243
		PEB5	1	5	3.95	1.191
Place Attachment (PA)		PD1	1	5	3.91	1.181
	Place Dependence (PD)	PD2	1	5	3.99	1.185
		PD3	1	5	3.87	1.253
		PD4	1	5	3.96	1.188
		PD5	1	5	3.99	1.173
	Place Identity(PI)	PI1	1	5	3.9	1.212
		PI2	1	5	3.92	1.212
		PI3	1	5	3.88	1.24
		PI4	1	5	3.93	1.158
		PI5	1	5	3.9	1.231
	Landscape Scenic value(LSCV)	LSCV1	1	5	3.84	1.243
		LSCV2	1	5	3.85	1.254
		LSCV3	1	5	3.86	1.243
		LSCV4	1	5	3.88	1.264
		LSCV5	1	5	3.79	1.261

	Landscape Service Value (LSEV)	LSEV1	1	5	3.8	1.236
		LSEV2	1	5	3.85	1.211
		LSEV3	1	5	3.9	1.189
		LSEV4	1	5	3.86	1.236
		LSEV5	1	5	3.83	1.265
	Landscape Experience Value(LEV)	LEV1	1	5	3.87	1.233
		LEV2	1	5	3.83	1.268
		LEV3	1	5	3.89	1.203
		LEV4	1	5	3.81	1.305
		LEV5	1	5	3.83	1.267
	Landscape Cultural Value(LCUV)	LCUV 1	1	5	3.89	1.263
		LCUV 2	1	5	3.83	1.261
		LCUV 3	1	5	3.86	1.243
		LCUV 4	1	5	3.78	1.298
		LCUV 5	1	5	3.92	1.207
	Landscape Cost Value(LCOV)	LCOV 1	1	5	3.82	1.207
		LCOV 2	1	5	3.82	1.276
		LCOV 3	1	5	3.77	1.318

5. ANALYSIS OF TEST RESULTS

After field questionnaire were distributed to the participants and data were collected for the study, SPSS 24.0 and AMOS 24.0 The research data from 558 valid questionnaires were subjected to reliability and validity tests and validation factor analyses, goodness-of-fit analyses of the model and hypothesis tests, and mediation effect analysis tests.

5.1 Reliability and validity tests and validated factor analysis of scales

Based on the valid data of the questionnaire, SPSS 25.0 was used to test the reliability of the measurement model, and the results of the measurement are shown in Table 3. The Cronbach's alpha values of the nine latent variables of landscape perceived value, place attachment, and environmentally responsible behaviours ranged from 0. 859-0. 918; the overall Cronbach's alpha value of the scale was 0.964, which was greater than 0.7%.and the overall Cronbach's alpha value for the scale was 0.964, which is greater than 0.7 (Peterson, 1994). The KMO value was 0.95 and the significance of Bartlett's sphere test was 0.00 < 1%, which made the data suitable for factor analysis. Validated factor analysis was conducted by AMOS 24.0, and the results are shown in Table 3. The standardized factor loadings of each item under each latent variable were all greater than 0.65, and all of them were greater than 0.5; the combined reliability (CR) of each latent variable was greater than 0.8, and all of them were greater than 0.7, which indicated that the latent variables had good reliability; the average variance extracted (AVE) of each latent variable was greater than 0.6, and all of them were greater than 0.5; the KMO value was 0.95, and the significance of Bartlett's ball test was 0.00 <1%, and the data were suitable for factor analysis. The average variance extracted (AVE) of each latent variable is greater than 0.6, and all of them are greater than 0.5, indicating that the validity of each latent variable is good.

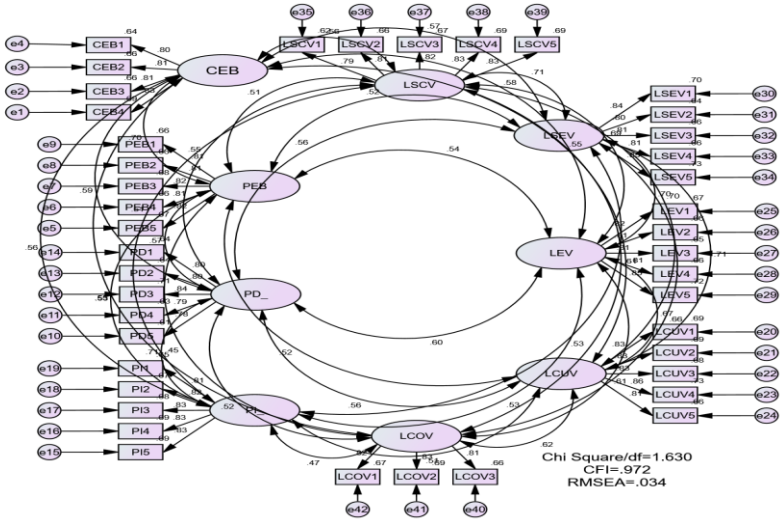

Figure 2: Measurement model

Table 3: Reliability validity and validation factor analysis results

Variables	Dimensions	Items	Standardized Loading (>0.7)	CR	AVE	Cronbach's Alpha(>0.7)
Urban Residents' Environmental Responsible Behaviours (URERB)	**Compliance-based Environmental Behaviour (CBE)**	CEB1	0.8	0.888	0.664	0.887
		CEB2	0.815			
		CEB3	0.816			
		CEB4	0.828			
	Proactive Environmental Behaviour(PEB)	PEB1	0.814	0.909	0.665	0.909
		PEB2	0.811			
		PEB3	0.823			
		PEB4	0.814			
		PEB5	0.816			
Place Attachment (PA)	**Place Dependence (PD)**	PD1	0.797	0.901	0.646	0.901
		PD2	0.802			
		PD3	0.844			
		PD4	0.792			
		PD5	0.783			
	Place Identity (PI)	PI1	0.828	0.913	0.678	0.913
		PI2	0.825			
		PI3	0.824			
		PI4	0.809			
		PI5	0.832			
	Landscape Scenic value (LSCV)	LSCV1	0.83	0.918	0.691	0.908
		LSCV2	0.831			
		LSCV3	0.826			
		LSCV4	0.856			
		LSCV5	0.812			
	Landscape Service Value（LSEV）	LSEV1	0.839	0.913	0.677	0.913
		LSEV2	0.798			
		LSEV3	0.812			
		LSEV4	0.813			
		LSEV5	0.852			

	Landscape Experience Value (LEV)	LEV1	0.816	0.911	0.671	0.910
		LEV2	0.814			
		LEV3	0.809			
		LEV4	0.808			
		LEV5	0.847			
	Landscape Cultural Value (LCUV)	LCUV1	0.787	0.908	0.664	0.918
		LCUV2	0.809			
		LCUV3	0.821			
		LCUV4	0.829			
		LCUV5	0.828			
	Landscape Cost Value (LCOV)	LCOV1	0.815	0.859	0.671	0.859
		LCOV2	0.828			
		LCOV3	0.814			

5.2 Structural equation model fitting and hypothesis testing

Parameter estimation of the structural model was carried out in AMOS 24.0 using the great likelihood method, and the overall goodness-of-fit analysis of the model showed that the relative chi-square value (χ^2 / df) = 1.582, RMR = 0. 042, RMSEA= 0. 032, CFI= 0. 973, TLI= 0. 971, NFI= 0. 930, IFI = 0. 973, which all meet the criteria, indicating that the model is well fitted, and the results of the model are acceptable.

In this study, the hypothesis path analysis was conducted with a significance P < 0.05 test, because the dimensional analysis of perceived landscape value was conducted above, and place attachment and environmentally responsible behaviour are multidimensional latent variables, so the hypotheses of H1, H2, H3 and H4 were expanded accordingly.

The results of hypothesis testing were obtained as shown in Table 4 .All of the H1 sub-hypotheses were tested, indicating that the five dimensions of the perceived value of the landscape are important for both compliant and proactive environmental behaviour.All of them have direct significant positive influence; in H2 sub-hypothesis, except sub-hypotheses H2c and H2e did not pass the validation, the rest of the sub-hypotheses passed the validation ,indicating that the perceived cultural value and cost value of urban residents do not have a significant influence on place dependence;</a4> H3 sub hypotheses all passed the verification, indicating that place dependence and place identity have a direct and significant positive effect on both compliant environmental behaviour and proactive environmental behaviour.In summary of the test results, this study revised the theoretical model to obtain the revised model, as shown in Figure 3.

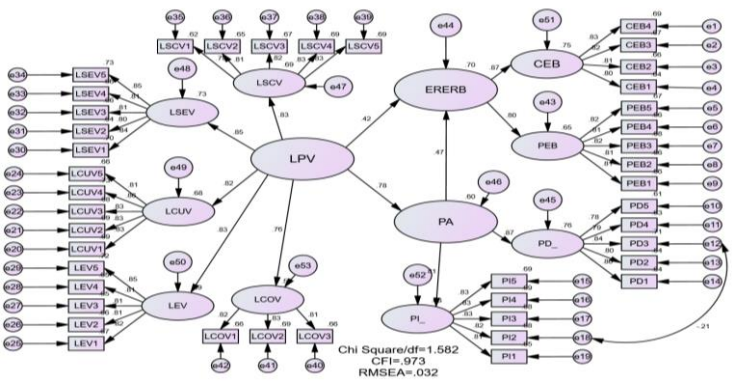

Figure 3: structural equation model

Table 4: Structural equation model path coefficients and hypothesis testing

Hypothesis	Standardized path Coefficients	S.E.	T-value	P-value	hypothesis testing
H1:ERERB<---LPV	0.419	0.082	5.317	***	Support
H1a:CEB<---LSCV	0.166	0.056	2.491	0.013	Support
H1b:CEB<---LSEV	0.171	0.054	2.479	0.013	Support
H1c:CEB<---LCUV	0.176	0.051	2.673	0.008	Support
H1d:CEB<---LEV	0.269	0.053	4.102	***	Support
H1e:CEB<---LCOV	0.217	0.046	3.512	***	Support
Hf:PEB<---LSCV	0.148	0.057	2.232	0.026	Support
H1g:PEB<---LSEV	0.159	0.056	2.319	0.02	Support
H1h:PEB<---LCUV	0.186	0.053	2.847	0.004	Support
Hi:PEB<---LEV	0.271	0.055	4.154	***	Support
Hj:PEB<---LCOV	0.097	0.047	1.604	0.109	Support
H2:PA<---LPV	0.775	0.063	12.56	***	Support
H2a:PD<---LSCV	0.065	0.046	1.126	0.26	Support
H2b:PD<---LSEV	0.047	0.045	0.777	0.437	Support
H2c:PD<---LCUV	0.107	0.042	1.867	0.062	Not Support
H2d:PD<---LEV	0.219	0.045	3.778	***	Support
H2e:PD<---LCOV	0.097	0.038	1.82	0.069	Not supported
H2f:PI<---LSCV	0.156	0.06	2.365	0.018	Support
H2g:PI<---LSEV	0.188	0.058	2.762	0.006	Support
H2h:PI<---LCUV	0.163	0.055	2.509	0.012	Support
H2i:PI<---LEV	0.222	0.057	3.433	***	Support
H2j:PI<---LCOV	0.128	0.049	2.126	0.034	Support
H3:ERERB<---PA	0.469	0.083	5.754	***	Support
H3a:CEB<---PD	0.441	0.049	5.923	***	Support
H3b:PEB<---PD	0.421	0.049	5.665	***	Support
H3c:CEB<---PI	0.334	0.057	7.607	***	Support
H3d:PEB<---PI	0.317	0.057	7.295	***	Support

5.3 Analysis of the mediating effects of place attachment

In this study, the mediating effects of place attachment on perceived landscape value and environmentally responsible behaviour were examined using the Bootstrap method in AMOS 24.0 software, and the results of the analysis are shown in Table 5 .In the pathway "LPV→PA→URERB " , the indirect effect of landscape perceived value on environmentally responsible behaviour was </a1>0.237, with confidence intervals at the bias-corrected and percentile 95% confidence levels that do not include 0. The indirect effect is significant.

In the sub-hypothesis extension validation of hypothesis H4, th3 “LSCV→PD→CEB”、“LSCV→PD→PEB”、“LSCV→PI→CEB”、“LSCV→PI→PEB”、“LSEV→PD→CEB”、“LSEV→PD→PEB”、“LSEV→PI→CEB”、“LSEV→PI→PEB”、“LCUV→PD→CEB”、“LCUV→PD→PEB”、“LCUV→PI→CEB”、“LCUV→PI→PEB”、“LEV→PD→CEB”、“LEV→PD→PEB”、“LEV→PI→CEB”、“LEV→PI→PEB”、“LCOVV→PD→CEB”、“LCOV→PD→PEB” The indirect effect values of the 20 pathways ranged from 0.141 to 0.178, indicating that at the 95% confidence level, the confidence intervals of all the indirect effects do not contain 0, thus the indirect effects are significant. This means that all dimensions of place attachment play a partial mediating role between the different dimensions of landscape perception value and environmental responsibility behavior.

Table 5: Mediating effects results

Path	estimate	Bias-corrected 95% CI		Percetule 95% CI			Result
		lower	Upper	lower	Upper	P	
LPV→PA→URERB	**0.237**	**0.151**	**0.335**	**0.146**	**0.33**	**.000**	Support
LSCV→PD→CEB	.175	.122	.240	.118	.235	.000	Support
LSCV→PD→PEB	.156	.111	.213	.108	.207	.000	Support
LSCV→PI→CEB	.155	.110	.212	.107	.208	.000	Support
LSCV→PI→PEB	.155	.107	.208	.107	.208	.000	Support
LSEV→PD→CEB	.178	.121	.247	.118	.243	.000	Support
LSEV→PD→PEB	.159	.111	.217	.108	.214	.000	Support
LSEV→PI→CEB	.174	.116	.238	.114	.235	.000	Support
LSEV→PI→PEB	.155	.108	.216	.104	.210	.000	Support
LCUV→PD→CEB	.175	.122	.240	118	.235	.000	Support
LCUV→PD→PEB	.154	.109	.211	.106	.205	.000	Support
LCUV→PI→CEB	.172	.117	.236	.115	.232	.000	Support
LCUV→PI→PEB	.154	.109	.212	.105	.207	.000	Support
LEV→PD→CEB	.163	.109	.227	.106	.224	.000	Support
LEV→PD→PEB	.148	.103	.206	.100	.200	.000	Support
LEV→PI→CEB	.175	.117	.241	.114	.238	.000	Support
LEV→PI→PEB	.157	.109	.220	.105	.213	.000	Support
LCOVV→PD→CEB	.173	.121	.235	.118	.231	.000	Support
LCOV→PD→PEB	.141	.101	.194	.097	.189	.000	Support
LCOV→PI→CEB	.175	.124	.237	.121	.233	.000	Support
LCOV→PI→PEB	.141	.100	.195	097	.191	.000	Support

6. DISCUSSION

The findings of this paper confirm and support the theoretical analytical framework as well as the theoretical assumptions of this paper, which are informative in analyzing the perceived value of urban residents' landscapes and how to promote environmentally responsible behaviour.

Urban green spaces are in the vicinity of residential areas in various forms, serving as the main outdoor activity venues for urban residents and closely related to their well-being. Therefore, studying urban residents' environmental responsibility behavior has important practical significance for promoting the development and construction of urban green spaces. When discussing urban residents' environmental responsibility behavior, both rational factors and emotional factors should be taken into consideration. Based on previous studies, this paper explores the green space landscape perception dimensions from the perspective of place attachment to integrate emotional factors into the analysis, in order to deeply analyze the influence of perception value and place attachment on environmental responsibility behavior and their interaction mechanism. The study shows that different dimensions of perception value have different degrees of influence on environmental responsibility behavior, which to some extent supplements the shortcomings of Tsaur et al. (2021) in exploring the dimensions of perception value. Meanwhile, individuals usually trigger their inner emotions through cognitive forms and find connections with places (Seongryul Park, 2022), further promoting the development of environmental responsibility behavior. This paper introduces place attachment, a emotional feedback mechanism, and conducts empirical analysis to better explore the influence of perception value on urban residents' emotional responses, thereby effectively promoting the environmental responsibility behavior of residents in urban green spaces.

The empirical results of this study show that the standard path coefficient of the overall landscape perception value on environmental responsibility behavior is 0.419, with a p-value less than 0.05, proving that the former has a positive impact on the latter. Through hypothesis extension research, all dimensions of perceived value have a significant impact on the dimensions of environmental responsibility behavior, especially on the path of CEB --> LEV, where the standard path coefficient is 0.269, with a p-value of 0.000, indicating that the perceived experiential value has a significant

positive impact on compliance-oriented environmental behavior. This finding emphasizes the importance of enriching fitness, entertainment, and other facilities in green spaces and enhancing the interactivity of green space to promote environmental protection behavior. At the same time, landscape value, service value, cultural value, and cost value also have a positive impact on compliance-oriented and proactive environmental behavior to varying degrees, as confirmed by previous studies (Saari et al., 2021; Tran et al., 2020; (Li et al., 2018)

In the path of PA --> LPV, perceived value as a whole has a positive and significant impact on place attachment, indicating that residents' perceived value in urban green spaces can enhance their environmental attachment to green spaces. In the expanded sub-study, the p-values of the PD --> LCUV and PD --> LCOV paths were both greater than 0.5, indicating that the impact of landscape cultural value and cost value on place dependence was not significant. This proves that residents' perception of landscape culture, their investment of time, money, and effort, and their dependence on green space functions have not been enhanced. The remaining paths show that the landscape value, experience value, and service value all have a positive and significant impact on place dependence and place attachment. This conclusion is supported by previous studies (Wang et al., 2021; Seongryul et al., 2022; (Petravičiūtė et al., 2021)

In the mediation analysis of place attachment, all dimensions of place attachment significantly mediate the relationship between landscape perceived value dimensions and residents' compliance and proactive environmental behaviors. This conclusion has also been empirically supported in previous studies (Zhang et al. 2020; Xu et al. 2022).

In conclusion, the research findings of this study can provide some reference for the sustainable development of urban green spaces and landscape design planning.

7. LIMITATIONS AND FUTURE DIRECTIONS

The survey data used in this paper is mostly cross-sectional data, and the data type is relatively. Future studies can use longitudinal and cross-sectional data in combination to enhance the reliability and credibility of the research results. When analyzing the impact of landscape perception value on environmental responsibility behavior, individual differences were not included in the study scope, especially for the elderly, who are the main participants in urban green space activities, and only 3% of the population over 50 years old in this study. The universality of the research results needs further verification. In the future, differentiated strategies can be formulated to guide their environmental responsibility behavior for different types of groups. Additionally, based on the SOR analysis framework, the cognitive-emotional factors as "S" can effectively act on the residents' attachment to place as "O"， which makes the residents' subjective emotions in the interaction process with green space exist certain differences. Therefore, the stability of the research conclusions in different types of spatial venues needs further verification.

However, it is suggested that for future research, the emotional state of residents can also be included in the factor analysis, as individual emotional states can affect the emotional link with place. Therefore, including the emotional state of recreational users in the study can provide a more comprehensive exploration of the influencing mechanisms of environmental responsibility behavior.

8. CONCLUSION AND PRACTICAL IMPLICATIONS

Taking urban residents in Henan as the research object, this study relies on the Stimulus-Organism-Response (S-O-R) theory, combines the landscape perception theory and the perceived value theory, and explores the influencing mechanism of residents' environmental responsibility behaviours from the perspective of place attachment. The results of empirical analyses can provide certain theoretical references to the landscape planning scheme of urban green space.

1. Landscape perceived value the can be divided into five dimensions: landscape scenic value, service value, experiential value, cultural value and apparent cost value; All dimensions of landscape perceived value directly and significantly influence compliance-based environmental behaviour, in descending order of influence, as follows Landscape experience value(0.269) > Landscape cost value (0.217)＞Landscape cultural value (0.176) > Landscape Service value (0.171) > landscape scenic value (0.166).The landscape experiential value had

the greatest impact, which suggests that the experiential feel of the landscape is the driver of residents to comply with environmental behaviours..All dimensions of landscape perceived value directly and significantly influence active environmental behaviour, the degree of influence from high to low in the order of landscape experience value (0.271) > landscape cultural value (0.186) > landscape servicing value (0.148) > landscape scenic value (0.148) > landscape cost value (0.091).The greatest influence of landscape experience value remains the main driver of residents' active environmental behaviour. This finding suggests that in future green space construction, general functions can no longer meet the needs of urban residents, and it is important to focus on the experiential value perceived by residents to meet the needs of future green space development.

2. In addition to the landscape cultural value and cost value, the other dimensions of landscape perception value have a significant impact on place dependence and place identity. These research results further reveal the specific realization pathways of place attachment through landscape perception value. In the dimension of place dependence, the impact degree from high to low is as follows: landscape experience value (0.219)> landscape scenic value (0.065)> landscape service value (0.047). Among them, the impact of landscape green space construction on place dependence is the largest. Place dependence is a functional demand, and a good landscape experience enables residents to form a deep dependence on the environment, thus making it easier to enhance their experience and promote the formation of place dependence. Therefore, in order to better cultivate residents' place dependence on urban green spaces, efforts should be made to strengthen the construction of landscape facilities. General functional supply can no longer meet people's growing experience needs, so in green space planning and design, not only should basic functional needs be met, but the visual and usage experience should also be further enhanced to targeted to strengthen urban residents' place dependence on green spaces. In addition, all dimensions of landscape perception value have a significant impact on place identity, with the impact of experience value being the largest, which shows that good experiences can enhance urban residents' emotional identification.
3. Compared with Landscape perceived value, place attachment plays a more positive role in driving the formation of urban residents' environmental responsibility behavior. Compared with place identity, place dependence has a greater impact on urban residents' environmental responsibility behavior, so to better stimulate urban residents' environmental responsibility behavior, urban green spaces should not only accelerate the construction of the landscape system, but also consider the importance of place attachment and fully utilize its mediating effect to enhance the emotional bond between people and the land.

REFERENCES

Ahmad, N., Ullah, Z., Arshad, M. Z., Kamran, H. waqas, Scholz, M., & Han, H. (2021). Relationship between corporate social responsibility at the micro-level and environmental performance: The mediating role of employee pro-environmental behavior and the moderating role of gender. *Sustainable Production and Consumption*, *27*, 1138–1148. https://doi.org/10.1016/J.SPC.2021.02.034

Al-Swidi, A. K., Gelaidan, H., & Saleh, R. M. (2021). The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance. *Journal of Cleaner Production*, *316*, 128112. https://doi.org/10.1016/J.JCLEPRO.2021.128112

Amado, M., Guzmán, A., & Juarez, F. (2023). Relationship between perceived value, student experience, and university reputation: structural equation modeling. *Humanities and Social Sciences Communications*, *10*(1). https://doi.org/10.1057/s41599-023-02272-y

Anderson, J. C., Jain, D. C., & Chintagunta, P. K. (1992). Customer Value Assessment in Business Markets: A State-of-Practice Study. *Journal of Business-to-Business Marketing*, *1*(1), 3–29. https://doi.org/10.1300/J033v01n01_02

Aram, F., Higueras García, E., Solgi, E., Mansournia, S., & García, E. H. (2019). Urban green space cooling effect in cities. *HLY*, *5*, e01339. https://doi.org/10.1016/j.heliyon.2019

Bramwell, B. (1994). Rural tourism and sustainable rural tourism. *Journal of Sustainable Tourism*, *2*(1–2), 1–6. https://doi.org/10.1080/09669589409510679

Brown, G., Reed, P., & Raymond, C. M. (2020). Mapping place values: 10 lessons from two decades of public participation GIS empirical research. In *Applied Geography* (Vol. 116). Elsevier Ltd. https://doi.org/10.1016/j.apgeog.2020.102156

Cheng, T. M., & Wu, H. C. (2015). How do environmental knowledge, environmental sensitivity, and place attachment affect environmentally responsible behavior? An integrated approach for sustainable island tourism. *Journal of Sustainable Tourism*, *23*(4), 557–576. https://doi.org/10.1080/09669582.2014.965177

Dandotiya, R., & Aggarwal, A. (2023). An examination of tourists' national identity, place attachment and loyalty at a dark tourist destination. *Kybernetes*, *52*(12), 6063–6077. https://doi.org/10.1108/K-08-2021-0756

Daniel R Williams, Michael E. Patterson, & Joseph W. Roggenbuck. (1992). Beyond the Commodity Metaphor: Examining Emotional and Symbolic Attachment to Place. *Leisure Sciences*, *14*, 29–46.

Daryanto, A., & Song, Z. (2021). A meta-analysis of the relationship between place attachment and pro-environmental behaviour. *Journal of Business Research*, *123*, 208–219. https://doi.org/10.1016/J.JBUSRES.2020.09.045

Dolnicar, S. (2020). Designing for more environmentally friendly tourism. *Annals of Tourism Research*, *84*, 102933. https://doi.org/10.1016/J.ANNALS.2020.102933

Enssle, F., & Kabisch, N. (2020). Urban green spaces for the social interaction, health and well-being of older people— An integrated view of urban ecosystem services and socio-environmental justice. *Environmental Science & Policy*, *109*, 36–44. https://doi.org/10.1016/J.ENVSCI.2020.04.008

Finaritra, R. M., & Benjamin, R. P. (2021). INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS The Impact of Internal Marketing on Service Quality, Perceived Value, Consumer Satisfaction and Loyalty in the Service Sector. *IJMRA*. https://doi.org/10.47191/ijmra/v4-i2-17

Foley, J. A., DeFries, R., Asner, G. P., Barford, C., Bonan, G., Carpenter, S. R., Stuart Chapin, F., Coe, M. T., Daily, G. C., Gibbs, H. K., Helkowski, J. H., Holloway, T., Howard, E. A., Kucharik, C. J., Monfreda, C., Patz, J. A., Colin Prentice, I., Ramankutty, N., & Snyder, P. K. (2005). *Global Consequences of Land Use*. www.sciencemag.org

Gao, P., Cheng, C., & Song, C. (2019). Satellite remote sensing for biodiversity conservation: exemplary practices and lessons learned. *Landscape Ecology*, *34*(8), 2045–2047. https://doi.org/10.1007/s10980-019-00874-z

Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. In *International Journal of Psychology* (Vol. 49, Issue 3, pp. 141–157). Wiley-Blackwell Publishing Ltd. https://doi.org/10.1002/ijop.12034

Hua, J., Liu, S. Y., Xiao, J. D., & Tu, C. R. (2023). The Consideration of Greenway Landscape Guidelines Based on Regional Integrity-Xi,an International Trade & Logistics Park Greenway Landscape Guidelines as an Example. *Chinese Landscape Architecture*, *35(S2)*, 84–88. https://doi.org/10.19775/j.cla.2023.S2.0084

Inalhan, G., Yang, E., & Weber, C. (2021). Place Attachment Theory. In *A Handbook of Theories on Designing Alignment Between People and the Office Environment* (pp. 181–194). CRC Press. https://doi.org/10.1201/9781003128830-16

Irwin,A., Setha M. L. (1992) . Place Attachment. USA: New York.

Jiang, Y., & Hong, F. (2023). Examining the relationship between customer-perceived value of night-time tourism and destination attachment among Generation Z tourists in China. *Tourism Recreation Research*, *48*(2), 220–233. https://doi.org/10.1080/02508281.2021.1915621

Kennedy, C. F. (2023). *Student Journal of Business and Management Pengaruh Place Attachment, Perceived Value, Personal Norms terhadap Tourist Environmentally Responsible Behavior pada Destinasi Wisata Super Prioritas Indonesia*. *Student Journal of Business and Management*, *42*(1), 193–212.

Kong, Y.D., Huang, Z. X., Tao, Z. M., & Lin, Q. (2019). Study On The Influence Mechanism Of Tourists' Environmentally Responsible Behavior Based On Perception Of Rurality—A Case Study of

Jiangning District of Nanjing City. *Jou r nal Of Nanjing No r mal Unive r sity(Natural Science Edition)*, *42*(1), 124–131. https://doi.org/10.3969 / j.issn.1001-4616.2019.01.019

Kumar, A., & Lata, S. (2022). Measuring environmental responsible behavior through experience quality, perceived value, and tourist satisfaction from the perspectives of tourists in natural sites. *Journal of Global Business Insights*, *7*(2), 166–183. https://doi.org/10.5038/2640-6489.7.2.1186

Kuo, H. M., Su, J. Y., Wang, C. H., Kiatsakared, P., & Chen, K. Y. (2021). Place attachment and environmentally responsible behavior: The mediating role of destination psychological ownership. *Sustainability (Switzerland)*, *13*(12). https://doi.org/10.3390/su13126809

Lee, T. H., Jan, F. H., & Yang, C. C. (2013a). Conceptualizing and measuring environmentally responsible behaviors from the perspective of community-based tourists. *Tourism Management*, *36*, 454–468. https://doi.org/10.1016/j.tourman.2012.09.012

Lee, T. H., Jan, F. H., & Yang, C. C. (2013b). Conceptualizing and measuring environmentally responsible behaviors from the perspective of community-based tourists. *Tourism Management*, *36*, 454–468. https://doi.org/10.1016/j.tourman.2012.09.012

Liu, F., Fu, W., Hong, S., Dong, J., & Wang, M. (2021). Study on the Relationship between Landscape Perception and Environmental Responsibility Behavior of Tourists in Urban Parks-A Case Study of Mountain Parks in Fuzhou City. *FORESTRY ECONOMICS*, 80–95. https://doi.org/10.13843/j.cnki.lyjj.20211027.001

Liu, Z., Xie, M., Tian, K., & Gao, P. (2017). GIS-based analysis of population exposure to PM2.5 air pollution—A case study of Beijing. *Journal of Environmental Sciences (China)*, *59*, 48–53. https://doi.org/10.1016/j.jes.2017.02.013

Menatti, L., Subiza-Pérez, M., Villalpando-Flores, A., Vozmediano, L., & San Juan, C. (2019). Place attachment and identification as predictors of expected landscape restorativeness. *Journal of Environmental Psychology*, *63*, 36–43. https://doi.org/10.1016/J.JENVP.2019.03.005

Nasr, E., Emeagwali, O. L., Aljuhmani, H. Y., & Al-Geitany, S. (2022). Destination Social Responsibility and Residents' Environmentally Responsible Behavior: Assessing the Mediating Role of Community Attachment and Involvement. *Sustainability (Switzerland)*, *14*(21). https://doi.org/10.3390/su142114153

Nuhadriel, Y., & Keni, K. (2022). The Impact of System Quality, Perceived Value, and Brand Personality, on Behavior to Subscribe in the Online Streaming Service. *Atlantis Press International B.V.,* 216, 474–479.http://creativecommons.org/licenses/by-nc/4.0/.

Parasuraman, A. (1997). *Reflections on Gaining Competitive Advantage Through Customer Value* (Vol. 25, Issue 2).

Parmentola, A., Petrillo, A., Tutore, I., & De Felice, F. (2022). Is blockchain able to enhance environmental sustainability? A systematic review and research agenda from the perspective of Sustainable Development Goals (SDGs). *Business Strategy and the Environment*, *31*(1), 194–217. https://doi.org/10.1002/bse.2882

Perkins, H. E., & Brown, P. R. (2012). Environmental Values and the So-Called True Ecotourist. *Journal of Travel Research*, *51*(6), 793–803. https://doi.org/10.1177/0047287512451133

Peterson, R. A. (1994). *A Meta-analysis of Cronbach's Coefficient Alpha*.

Petravičiūtė, K., Šeinauskienė, B., Rūtelionė, A., & Krukowski, K. (2021). Linking luxury brand perceived value, brand attachment, and purchase intention: The role of consumer vanity. *Sustainability (Switzerland)*, *13*(12). https://doi.org/10.3390/su13126912

Poortinga, W., Bird, N., Hallingberg, B., Phillips, R., & Williams, D. (2021). The role of perceived public and private green space in subjective health and wellbeing during and after the first peak of the COVID-19 outbreak. *Landscape and Urban Planning*, *211*. https://doi.org/10.1016/j.landurbplan.2021.104092

Rollero, C., & De Piccoli, N. (2010). Place attachment, identification and environment perception: An empirical study. *Journal of Environmental Psychology*, *30*(2), 198–205. https://doi.org/10.1016/J.JENVP.2009.12.003

Russell, J. A., & Mehrabian, A. (1974). DISTINGUISHING ANGER AND ANXIETY IN TERMS OF EMOTIONAL RESPONSE FACTORS *. In *Journal of Consulting and Clinical Psychology* (Vol. 42, Issue 1).

Sánchez-Fernández, R., & Iniesta-Bonillo, M. Á. (2009). Efficiency and quality as economic dimensions of perceived value: Conceptualization, measurement, and effect on satisfaction. *Journal of Retailing and Consumer Services*, *16*(6), 425–433. https://doi.org/10.1016/J.JRETCONSER.2009.06.003

Sun, Z., A Latai., & Zhang, X. (2020). Quantitative Equity Evaluation of Urban Park Spatial Distribution: A Case of Parks Within the Sixth Ring Road of Beijing. *Journal of Human Settlements in West China*, *35(3)*, 83–90.

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing*, *77*(2), 203–220. https://doi.org/10.1016/S0022-4359(01)00041-0

Tkaczynski, A., Rundle-Thiele, S., & Truong, V. D. (2020). Influencing tourists' pro-environmental behaviours: A social marketing application. *Tourism Management Perspectives*, *36*, 100740. https://doi.org/10.1016/J.TMP.2020.100740

Vaske, J. J., & Kobrin, K. C. (2001). Place Attachment and Environmentally Responsible Behavior. *The Journal of Environmental Education*, *32*(4), 16–21. https://doi.org/10.1080/00958960109598658

Venkataramanan, V., Packman, A. I., Peters, D. R., Lopez, D., McCuskey, D. J., McDonald, R. I., Miller, W. M., & Young, S. L. (2019). A systematic review of the human health and social well-being outcomes of green infrastructure for stormwater and flood management. *Journal of Environmental Management*, *246*, 868–880. https://doi.org/10.1016/J.JENVMAN.2019.05.028

Wang, Z. F., & Xiang, Q. S. (2020). The Effect and Differentiation of Landscape Perception and Place Attachment on the Residents' Cognition Towards Cultural Compensation. *ECONOMIC GEOGRAPHY*, *40*, 220–229. https://doi.org/10.15957/j.cnki.jjdl.2020.05.024

Wartmann, F. M., Stride, C. B., Kienast, F., & Hunziker, M. (2021). Relating landscape ecological metrics with public survey data on perceived landscape quality and place attachment. *Landscape Ecology*, *36*(8), 2367–2393. https://doi.org/10.1007/s10980-021-01290-y

Winton, B. G. (2023). Building responsible and sustainable tourism: The effects of community attitudes and place attachment on the Mississippi Gulf Coast. *Journal of Ecotourism*, 1–20. https://doi.org/10.1080/14724049.2023.2276661

Wu,M.L. (2003) . Statistical application of physical objects. China: BeiJing.

Xu, R., Luo, F., Chen, X., Li, M., & Barua, Z. (2021). Formation mechanism of environmental protection behaviours of community residents: A system dynamics perspective. *Kybernetes*, *50*(2), 386–412. https://doi.org/10.1108/K-12-2018-0653

Yang, F., Bao, Z. Y., & Fu, Y. F. (2021). Research on Accessibility of Hangzhou Comprehensive Parks Based on Spatial Syntax and LBS Big Data. *Landscape Architecture*, *28(2)*, 69–75. https://doi.org/10.14085/j.fjyl.2021.02.0069.07

Yusliza, M. Y., Amirudin, A., Rahadi, R. A., Athirah, N. A. N. S., Ramayah, T., Muhammad, Z., Dal Mas, F., Massaro, M., Saputra, J., & Mokhlis, S. (2020). An investigation of pro-environmental behaviour and sustainable development in Malaysia. *Sustainability (Switzerland)*, *12*(17). https://doi.org/10.3390/su12177083

Zeithaml, V. A. (1988). *Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence*.

Zhang, J.B., & Wu, E. (2023). A study on the recreational functions of national parks based on visitor perceived value - taking Yellowstone National Park and Wuyi Mountain National Park as examples.*World Geography Research*, *32*(2), 146–157. https://doi.org/10.3969/j.issn.1004-9479.2023.02.2021255

Zhang, L., & Yang, K. (2020). Translation: A Study on the Perception of Villagers' Attachment to Traditional Village Landscapes under Tourism Development—Taking Shaxi Village in Yunnan Province as an Example. Landscape *Architecture*, *27*(12), 104–109. https://doi.org/10.14085/j.fjyl.2020.12.0104.06