

Research on the Factors that Influence Environmental Education in Wetland Parks on Tourists' Carbon Offsetting Behavior based on Grounded Theory

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Abstract: In view of the “Dual Carbon Target”, it is necessary to clarify the influence mechanism of environmental education in wetland parks on tourists' carbon offsetting behavior to better promote the construction of environmental education in wetland parks, reduce emissions, increase sinks, and realize the purpose of protecting the ecological environment. Based on the S-O-R analysis framework, this paper takes OCT National Wetland Park as the research site and uses the grounded theory to analyze the transcribed transcripts of semi-structured interviews conducted by 16 tourists to build a mechanism model of the impact of environmental education in wetland parks on tourists' carbon offsetting behavior. It is found that the mechanism of influence of wetland park environmental education on tourists' carbon offsetting behavior can be divided into two stages: In the first stage, under the stimulation of wetland park environmental education, tourists' environmental restorative perception, environmental education perception, and environmental protection emotion are stimulated, and the awareness of carbon offsetting is awakened; in the second stage, after the awakening of the awareness of carbon offsetting, the tourists implemented the carbon offsetting behavior under the promotion of social norms. This paper uses the model to explain the internal logic of environmental education and tourists' carbon offsetting behavior and provides suggestions for the construction of wetland parks and the development of environmental education.

Keywords: Grounded Theory, Carbon Offsetting Behavior, Environmental Education, Wetland Parks.

1. Introduction

This Environmental issues have attracted widespread attention worldwide and from all walks of life. In September 2020, China clearly put forward the goals of “carbon peaking” and “carbon neutrality” and incorporated them into the overall layout of Chinese ecological civilization construction. Individual carbon offsetting behavior has a significant effect on improving the ecological environment[1]. As the second classroom for the public, environmental education aims to arouse the environmental awareness of the educatees, cultivate their environmental literacy, impart their knowledge and skills of environmental protection, establish their correct environmental values, and encourage them to participate in environmental protection actions, which can realize the process from knowledge interpretation to transmission[2], and finally realize the function of public guidance and education[3]. It undertakes the important task of improving environmental quality and standardizing individual environmental behavior[4]. The public can also impact cognition, attitude, consciousness, and behavior while acquiring environmental knowledge[5]. Therefore, some studies have proved that environmental education perception can guide the environmental behavior of recreational users[6] and have clarified the realization path of environmental education function[7] and the influence mechanism of urban green space environmental education perception on carbon offsetting behavior[8].

In addition, wetland parks, as important camps for environmental education[9], are specific areas for wetland protection, restoration, publicity, education, scientific research, monitoring, ecological tourism, and other activities intended to protect wetland ecosystems and rationally utilize wetland resources[10]. While considering the role of wetland

protection and environmental education, the park also provides leisure and entertainment venues for tourists. Environmental education not only plays an important role in the protection of wetland ecosystems and resources, but the educational effect will directly affect the speed[11] of socialist ecological civilization construction in China. However, in the existing research on environmental education and carbon offsetting behavior, the mechanism of the impact of environmental education in wetland parks on tourists' carbon offsetting behavior needs to be further discussed. Therefore, it is necessary to further discuss the realization path of environmental education in wetland parks on carbon offsetting behavior through qualitative research on tourists' perception of environmental education and their behavioral responses in the recreation context of wetland parks.

In view of this, based on the S-O-R analysis framework and grounded theory, this paper analyzes the text data obtained from semi-structured interviews, refines a series of concepts and categories through three-level coding, discusses the evolution of environmental knowledge, emotional experience, and behavioral intention in the process of environmental education, and then proposes a mechanism model for the impact of environmental education in wetland parks on tourists' carbon offsetting behavior. To better elucidate the function of environmental education in wetland parks, provide a reference for related research and provide suggestions for the construction of environmental education in wetland parks based on the conclusions.

2. Literature review

2.1. Research on Carbon Offsetting Behavior

Carbon offsetting is a form of ecological offsetting that refers to the behavior of carbon emission offsetting, so as to

achieve the purpose[12] of reducing carbon emission, increasing carbon sink and protecting the ecological environment. As public environmental awareness has increased, personal spontaneous behavior of carbon offsets actually has the significant effect on the improvement of ecological environment[1].

In order to stimulate the public to carry out carbon offsetting behavior, some scholars have conducted research on its impact mechanism. There is abundant research on carbon offsetting model and mechanism as well as public participation willingness and attitude. For example, Zhang Yan et al.(2017) explored the carbon offsetting mechanism of air travelers based on planned behavior theory and normative activation theory[13]. Wang Liguang et al. (2020) used Logistics regression to analyze and compare the decision-making mechanism of carbon offsetting for forest tourists[14]. Duan Li et al.(2024) explored the influence mechanism of carbon emission information on tourists' willingness to carbon offset based on the persuasion theory and the two-factor theory of emotion-behavior[15]. These studies use different theoretical models to explain carbon offsetting behavior, but there are few studies on the impact mechanism of carbon offsetting behavior in the context of environmental education in wetland parks.

2.2. Stimulus-body-response (S-O-R) Analysis

S-O-R (Stimulus-Organism-Response) theoretical analysis framework is a research method proposed by Mehrabian & Russell(1974) and is widely used in behavioral science. It refers to the fact that when people receive external stimuli, there will be some influence on their internal organism, and then they promote their approach and avoidance behavior[16] of individuals.

S-O-R analysis framework can effectively integrate emotion, cognition and behavior, and can better reflect the implementation process[7] of individual behavior. Some scholars use the S-O-R theoretical analysis framework to explore the impact mechanism[17] of service quality on tourists' environmental responsibility behavior, and some scholars also put forward the functional realization mechanism model[7] of eco-tourism environmental education based on this framework.

Because of its rich ecological resources and complete supporting facilities, wetland parks can provide people with sightseeing, leisure and entertainment places and wetland ecological environment education and scientific research base[18], and is an important ecological education place. Its rich and unique ecological resources and complete supporting facilities become the basic place to carry out environmental education, thus producing a unique wetland park environmental education situation.

Based on this, based on the S-O-R analysis framework, this paper explores the process formation mechanism of the psychological and behavioral responses to carbon offsetting under the stimulation of environmental education situations in wetland parks.

3. Methodology

3.1. Item Generation

1)Research Methods: Glaser & Strauss(1967) introduced

grounded theory, as described in reference [19].Grounded theory, a qualitative research method for building theories from the ground up, suggests that researchers derive their theories from a variety of primary data sources, capturing and identifying core concepts that reflect social phenomena, and then refine these concepts through ongoing comparison, establishing connections between them and ultimately forming a new theory [20]. Until now, there has been limited research on the theoretical development of carbon offsetting behavior resulting from environmental education in wetland parks.. Therefore, based on the research method of grounded theory, this paper collates the interview data information and constructs a theoretical model of the influencing factors and mechanisms of environmental education on carbon offsetting behavior of wetland parks through three levels of coding, namely open coding, spindle coding, and selective coding.

Survey region: This study selects Shenzhen OCT National Wetland Park (OCT Wetland) as the case study site. Oct Wetland is an important extension[21] of Shenzhen Bay coastal wetland ecosystem. Located in the hinterland of modern metropolis, OCT wetland provides great convenience for urban people to understand wetlands, get close to nature and feel the ecological environment.

At present, a total of 369 species of 89 families of vascular plants and 175 species of birds have been recorded in the OCT Wetland, boasting extremely rich ecological resources and biodiversity. In addition to the OCT wetland itself as a complete ecological education site, a purpose-built ecological education base has been built in the southeast of the park. Five water-friendly walkways, four wooden bird watching pavilions and three historical sentry booths have been built or retained around the wetland. In the wetland, there are wetland schematics, ecological guide cards and science popularization introduction cards, which constitute the guide system. The ecological resources and hardware conditions of wetland lay the foundation for the development of environmental education. It is worth emphasizing that OCT Wetland was awarded the title of "Guangdong Environmental Education Base" by Guangdong Provincial Environmental Protection Department in 2014. In the same year, OCT Wetland Park established the first nature school in Shenzhen, which has become a model of nature school and environmental education in China[22]. Therefore, this study takes OCT National Wetland Park as a case study to explore the impact mechanism of wetland park environmental education on carbon offsetting behavior, which is representative and typical to a certain extent.

Data Sources: This study adopts the semi-structured interview method. The interviewees are tourists in OCT National Wetland Park who visited OCT wetland from December 2024 to January 2025. Convenience sampling was used to select interviewees. A total of 16 interviews are obtained in this study. The interview data were screened according to the interview practice and the quality of the interviewees' answers. Finally, 15 valid samples were obtained, including 7 male samples, accounting for 47%. The female sample size was 8, accounting for 53%. The interview duration ranged from 10-25 minutes and was transcribed into 30,000 words of text.

Table 1. Basic information of the interviewees

Respondent Number	Gender	Number/frequency of recreation	Eco Education Know the situation
A	male	Travel 1-2 times a month	Know and participate in ecological education courses
B	male	Been 3 to 5 times	Have known and participated in ecological education courses
C	male	Been 3 to 5 times	Understand but have not attended an ecological education course
D	male	Travel 1-2 times a month	Know and participate in ecological education courses
E	male	Been 1 or 2 times	Understand but have not attended an ecological education course
F	female	Been there 5 to 7 times	Have known and participated in ecological education courses
G	female	Travel 1 to 2 times a month	Understand but have not attended an ecological education course
H	female	Been 1 or 2 times	Understand but have not attended an ecological education course
I	female	Travel 1 to 2 times a month	Know and participate in ecological education courses
J	female	Been 1 or 2 times	Have known and participated in ecological education courses
K	female	Been 1 or 2 times	Understand but have not attended an ecological education course
L	male	Been 1 or 2 times	Understand but have not attended an ecological education course
M	male	Been 3 to 5 times	Have known and participated in ecological education courses
N	female	Been 1 or 2 times	Understand but have not attended an ecological education course
O	female	Been 3 to 5 times	Understand but have not attended an ecological education course

3.2. Analysis based on Grounded Theory

1) Open coding: Open coding, that is, first-level coding, requires researchers to have an open mind, abandon personal subjective biases and established theoretical paradigms of the academic community as much as possible, and “crumple” the collected original data to give new concepts and classify them

into new categories[20]. In this paper, 58 concepts are obtained through refining and careful comparison, and the connotations and internal relations of these concepts are further analyzed and compared, forming 20 basic categories. Examples of categories formed by open coding are listed in Table 2.

Table 2. Examples of categories formed by open coding

Basic Categories	concept	Original statement
Escape	Away from the city	I think OCT Wetland Park should be a very natural and ecological place, a place where you can escape the pressure of the city for a while and feel the natural environment. (A)
Low carbon promotes behavior	Advice	But I also think they could do with a little bit more construction inside the wetlands, because I feel like a lot of species could be introduced a little bit like that bulletin (F)
Ecological awareness	Realistic threats	I'll hear a useful noise from Splendid China next door. Because as a tourist, I feel the noise is quite loud. I think it will affect the habitat of some wild animals in the wetland park, which may have a negative effect. (A)
Pride	Serving the country	As a tourist, if I am exposed to some activity or opportunity in my life to reduce carbon emissions, I will feel proud because I have helped my country. (B)
Self-disciplined behavior	Green travel	This makes me want to stay involved in actions to reduce carbon emissions, such as prioritising public transport. (B)
National policy	“Two-carbon” policy	First of all, our country is also emphasizing the “two-carbon” policy recently. After putting forward this policy, we can clearly feel that the surrounding landscape has become clearer and greener. (B)
Meaning extension	Urban traffic pressure	This will not only reduce carbon emissions, but also reduce the pressure on urban traffic. (B)
Ecological knowledge	Corrective behavior	If we learn about the science of life through ecological education courses, we can correct some of our low-carbon awareness more precisely. (B)
Interest stimulation	Fun to learn	I can learn this knowledge in fun, and I think I can remember it better in this way. (C)

2) Spindle coding: Spindle coding, also known as “axis coding”, requires the mining and establishment of various

relationships (including causal, semantic, temporal, etc.) between concepts and categories formed in open coding, so as to show that the various parts of the collected magnetic therapy are interrelated[20]. In this study, from 20 basic categories, six main categories were extracted: environmental

restorative perception, social norms, environmental education perception, environmental protection emotion, carbon offsetting consciousness, and carbon offsetting behavior, as listed in Table 3.

Table 3. The core category is formed by spindle coding

Main Category	Basic Category	Examples of concepts involved
Environmental restorative perception	Charming	Scene description (one of the few places to observe migratory birds, close contact with nature, unique forest paths and calm lakes) Unique experiences (seeing unique birds, natural birdwatching pavilions and platforms, mangroves poking their breathing roots out of the water) Frequency of recreation Willingness to recommend Willingness to revisit Mental perception (relaxation, surprise, surprise, novelty, enjoyment, fun)
	Escape	Geographical distance (away from the city, escape from the steel forest, escape from the work environment) Psychological distancing (longing for nature, exploring nature, disengaging from work)
	Degree	Consistency (management and construction of the park, consistency of internal elements) Scope
	Compatible	The individual fits in with the environment Thinking and feeling Photographic record
Social norms	National policy	“Two-carbon” policy
	Park rules and regulations and management	Visitor behavior Requirements
		The preservation and construction of bird watching pavilion Zoning restrictions (sightseeing area, conservation area) Planning displays
	Others behavior	Volunteer behavior Children’s education Parent-child interaction
Environmental education perception	Ecological knowledge	Ecological education courses Wetland Achievement Explanatory card display Expert lectures
	Interest stimulation	Fun to learn Practicality Knowledge application Species contact
	Sensory experience	Visual experience Tactile sensation Auditory sensations (birdsong, water sound, wind) Olfactory sensations (fresh air, natural smells)
Environmental protection feelings	A sense of awe	Natural awe (exclaiming the abundance of nature, flora and fauna)
	Feelings of guilt	Negative effects of human activities
	Pride	Serving the country Environmental Achievements
	Feelings of euphoria	Intergenerational transmission of environmental awareness
Awareness of carbon offsetting	Environmental attitude	Promotion of park construction model Environmental expectation Question the influence of scenic spots around the park 4. Acknowledge environmental Achievements Denounce environmentally unfriendly behavior
	Environmental regulation and management support	Understand the inconvenience of the scenic area (e.g. no bathroom on the way) Reservation and limited flow in scenic spots
	Understanding of carbon emission problem	Habitat destruction Environmental threats
	Extended meaning	Urban life improvement Residents’ living environment
Carbon offsetting behavior	Self-regulating behavior	Green travel Behave yourself Replenishing activities (planting trees) Volunteer service activities (park maintenance, ecological explanation) Living habits Receive ecological lectures and courses
	Low carbon promotes behavior	Advice Appeals Knowledge transfer Tap into low-carbon behaviors in your life

3) Selective coding: Selective coding is the process of selecting an overarching “core category” after in-depth

analysis of the discovered conceptual categories. It includes the largest number of research results within[20] a broader theoretical scope, aiming to further explore the connections between certain specific categories. Through logical analysis of each main category obtained by spindle coding, this study combined with the research theme, extracted “carbon offsetting behavior realization” and built a theoretical and logical model of the factors related to the influence of environmental education on carbon offsetting behavior in the wetland park, as shown in Fig. 1.

The structure of the story line is as follows: tourists in the wetland park have environmental restorative perception and environmental education perception in the context of environmental education, and then their carbon offsetting consciousness can be awakened. Under the positive regulation of social norms, they finally implemented carbon offsetting behavior.

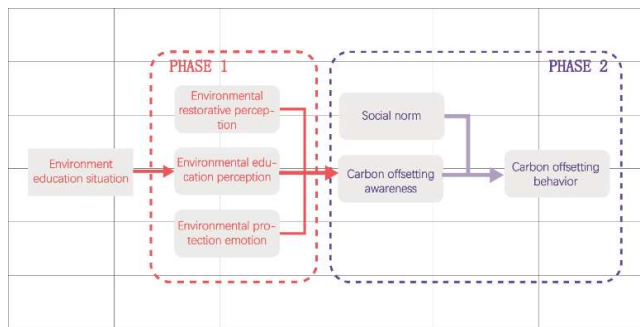


Fig. 1 Logical structure of the main category

3.3. Model Construction

After the theoretical saturation test, no new category was found, indicating that the theoretical saturation had been reached. Therefore, this study will focus on the two stages of the impact mechanism of wetland park environmental education on carbon offsetting behavior model construction and theme elaboration.

(1) Stage 1: Tourists’ environmental restorative perception, environmental education perception and environmental protection emotion stimulation

1) Formation of the environmental restorative perception

Restorative environment refers to the environment that can promote people to reduce negative emotions, relieve stress, and restore their physical, psychological and social abilities to heal[23]. Tourists’ environmental restorative perception refers to the comprehensive psychological restorative feeling that tourists experience in the tourist destination environment, which has the function of promoting their own pressure relief and physical and mental recovery[24-25].

The environmental restorative perception emphasizes the important role of the environment in people’s physical and mental recovery. When people are in high-intensity work and life for a long time, they easily feel physically and mentally tired and lose concentration. To promote the recovery of attention and maintain a high level of directed attention, individuals can be placed in a restorative environment. The natural environment is a typical restorative environment[26]. According to the concept of “restorative environment” proposed by Kaplan and his wife, the restorative environment has four significant characteristics, namely, charm, escape, degree and compatibility[27]. Oct National Wetland Park has the characteristics of restorative environment. Therefore, by referring to the research results of Kaplan and his wife, the main category of “environmental restorative perception” is

condensed.

Charming refers to an attractive environment that is easy to attract the attention of the individual, because it does not require deliberate attention, avoids lasting directed attention and gets rest[26]. When tourists rest in the OCT Wetland Park, their attention will be unconsciously attracted by the surrounding environment, and they will sigh. For example, “I think going there will feel amazing and then very relaxing.” (C) “Because living in a big city, you can hardly see some wild animals, especially migratory birds, their habits and forms.” (A), “Because there are more trees and species in the wetland ecological park, it is a good opportunity to get close to nature, which will make me feel relaxed” (J), “I like to go to this kind of place very much, because the environment here is good, the air is fresh, and I like it in all aspects.” (J)

Escape is divided into geographical and psychological distancing. Geographical distancing means that individuals leave their usual living environment and go to another place for a while to experience a foreign life. Psychological escape means that people escape from the oppressive environment that makes them tired and should take responsibility and obligation[7]. For individuals who are under great pressure in urban life, they can escape from the usual environment and get close to nature by visiting the wetland park. “It’s just my current work and life. It feels easy, but it’s not too easy. I like taking photos, and recently I have a camera. (I) “Immersion means that I can immerse myself in the ecological environment created by the park, while separation means that I am separated from the fast pace of life outside the city, and I have a feeling of returning to my hometown, which is very free.” (B) Sometimes I feel tired from work and want to go out for a walk. (C)

Degree is divided into consistency and scope. Consistency refers to the harmony between things in the environment and the overall environment; Scope refers to the restorative environment having a certain geographical space scope, leaving a certain space for individuals to carry out activities and imagination in the environment, emphasizing the spatial scale and richness of the destination environment[7]. The internal elements of the environment of the wetland park have strong consistency and coordination, especially allowing visitors to feel a sense of natural harmony. “There is a bird stake, is a place to watch birds, but he did more environmentally friendly, at that time told us not to disturb the birds” (I), “it can walk through the forest path, and there is a very beautiful lake landscape, even some animals” (G). In the geographical space of the wetland park, the richness and novelty of the environment can enable individuals to carry out their own preferred activities and imagination. “Sometimes I just want to walk quietly alone, listen to the birds, smell the flowers, walk on the boardwalk, looking at the calm lake my heart will be very calm.” (D)

Compatible means that the destination environment is consistent with the individual’s interests and hobbies and meets the needs of the individual to perform the favorite activities[7]. In the wetland park, visitors can experience the baptism of body and mind in the natural ecological environment, so that individuals and the environment have a sense of compatibility. “Before, when I walked on the path near the lake in the Wetland Park, I had A desire to explore, and I felt like this feeling” (A)

2) Formation of the perception of environmental education

The broad sense of environmental education perception is the public’s comprehensive perception of the setting and

operation effect of the environmental education system[6]. In the process of recreation in the OCT Wetland Park, tourists learn ecological knowledge through explanation sign display, participation in ecological education courses, and lectures. In the process of recreation, because they are in the wetland, they can practice and apply theoretical knowledge, which can stimulate tourists' interest in learning and multi-sensory experience. "This alone is more powerful than mere words" (F), "I feel that personal contact is better for me than words, that is, you can't just talk, I actually prefer to see what I see with my own eyes." (H)

3) The stimulation of the environmental protection emotion

In the recreation process of wetland park, visitors will also express environmental protection emotions because of the close contact with nature and the natural environment associated with social life, including the sense of awe, guilt, pride, and joy. The sense of awe comes from feeling the wonders of nature, such as "The last time I went to the park, I saw the trees blocking the path, and I felt that nature is quite powerful." (H) Pride comes from the direct experience of environmental protection after the tourist's recreation, such as "If I am exposed to some activities or opportunities in my life to reduce carbon emissions as a tourist, I will feel proud because I have helped my country." (B). Guilt comes from the perceived impact of humans on the habitats of other organisms, such as "The impact on organisms is greater, and there is actually a sense of guilt that because our actions affect the birds, the cabin he built will minimize the impact on the birds." (H) "It's comforting to be able to provide an educational curriculum to make people aware and aware of this." (G) It is gratifying to see that the implementation of ecological education courses has raised children's awareness of environmental protection.

(2) Stage 2: The awakening of carbon offsetting awareness and the implementation of carbon offsetting behavior

1) The awakening of carbon offset consciousness

The awareness of carbon offsetting is a kind of environmental protection awareness and behavioral tendency that individuals show by taking measures to offset the carbon emissions caused by their activities to the environment. In the process of visiting the wetland Park, the tourists' awareness of carbon offset is awakened: the tourists' attitude toward environmental protection such as the expectation of the promotion of the park construction model and the expectation of the urban living environment, "as a participant, I feel that this model (park construction) is very advanced in the industry." (B); Some people think it is uncivilized to throw rubbish, so they will throw it in a more hidden way, such as into the grass, which is really the case. (I); It is also reflected in the concern about the impact of the surrounding environment on the construction process of the park, "I will hear the useful noise of Splendid China next door... This will affect the habitat of some wild animals in the wetland park." (A). At the same time, tourists' awareness of carbon offsetting is also reflected in their support for environmental regulations and management and their awareness of carbon emissions. "What is not seen is that they minimize the impact of human activities, such as having few toilets." (D) "because of excessive carbon emissions... Damage to the environment of wetlands." (A).

2) The promotion role of social norms

Social norms refer to the expectation or pressure from the external group on the rules and standards of an individual's behavior perceived in the process of decision-making[28].

Such norms have a guiding and restraining effect on individual behavior[29]. The existing research shows that social norms have a positive promoting effect on individual norms and behaviors[30].

In the context of wetland park environmental education, social norms come from three aspects: national policies, park rules and regulations and management, and other people's behaviors. "Our country is also emphasizing the two-carbon policy recently" (B), "especially in the context of two-carbon policy... Brings you closer to this policy "(C) indicates the social norms that the country's" two-carbon "policy gives to individuals; "But they (the park) are very strict, that is, they don't let anyone touch anything. This makes me think that the park attaches a high degree of importance to ecological protection. "(H) indicates that the park's strict management restricts individual behavior; "I feel deeply about the environmental protection volunteers in the park. The volunteers don't expect anything in return... Provide a share of their strength." (D) Because in an educational classroom... Surround yourself with people who positively influence you, especially their environmental behavior "(D) indicates that the behavior of others acts as a social norm that leads individuals to environmental behavior.

3) Implementation of the carbon offsetting behaviors

In this study, carbon offsetting behavior refers to the behavior of carbon emission offsetting that tourists will take after receiving environmental education in Overseas Chinese Town wetland recreation, which can be summarized as self-restraint behavior and low-carbon promotion behavior in essence. Self-restraint behavior includes green travel, regulating self-behavior, participating in activities to increase foreign exchange, participating in volunteer service activities, changing living habits, and accepting ecological lectures and courses. As recorded in the interview, "After being exposed to these situations, I will urge myself to regulate my behavior, especially regarding garbage disposal." (I) "Considering the reasons for ecological protection... Do some low-carbon behavior." (A) "When some carbon reduction APP data is presented, it still feels good. Try to reduce your carbon emissions." (H) all of them show self-constrained carbon offsetting behaviors under the influence of environmental education. On the other hand, low-carbon promoting behaviors include suggestions, appeals, knowledge transmission, and exploring low-carbon behaviors in life. For example, "I think he may not be excellent at introducing species... But if you had a showcase, people would think it was a novelty, and that's what attracted me to him "(F); "We must all hope that wetlands will become better and better, carbon sink capacity will become stronger and stronger, and the early realization of 'dual carbon' (target)"(B).

4. Results and Discussion

4.1. Results

Based on a rooted analysis, this study built a mechanism model of the impact of environmental education on carbon offsetting behavior in a wetland park, covering the main categories of environmental restorative perception, environmental education perception, environmental protection emotion, social norms, carbon offsetting consciousness, and carbon offsetting behavior. The model draws on previous theoretical achievements and establishes a new relationship. The specific logical relationship is shown in Fig.2.

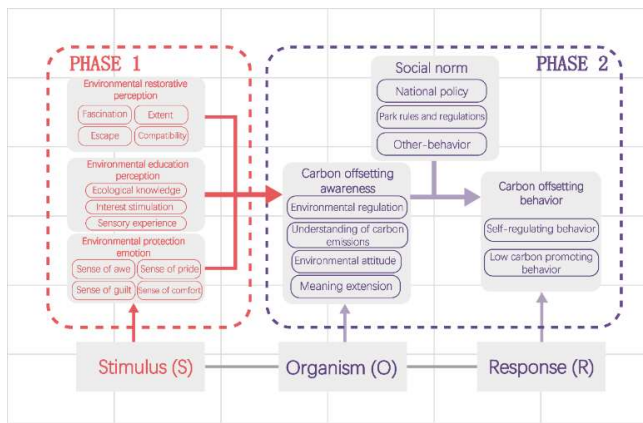


Fig. 2 Process mechanism under S-O-R analysis framework

The first stage is to stimulate tourists' environmental restorative perception, environmental education perception and environmental protection emotion, thus promoting the production of carbon offsetting consciousness. In other words, under the stimulation of the environment education situation in the wetland park, tourists have environmental restorative perception, fatigue reduction, and physical and mental relaxation; And have a sense of the environmental education content, through the multi-sensory experience, stimulate the interest in learning and exploration, to obtain ecological knowledge; Influenced by environmental education and the environment itself in the experience process, the emotion of environmental protection arises spontaneously. According to the S-O-R theoretical framework, factors such as the environmental education context and the environment of the wetland park itself can be regarded as external stimuli that can generate relevant perceptions and emotions for tourists. In other words, tourists gain a pleasant experience caused by a high-quality environment and environmental education content during the recreation process, and then indirectly stimulate the awareness of carbon offsetting.

In the second stage, tourists' awareness of carbon offsetting is awakened and carbon offsetting behavior is implemented under the influence of social norms. According to the S-O-R analysis framework, after receiving the stimulus described in the first stage, individuals awaken their awareness of carbon offsetting and promote their response to implement carbon offsetting behavior under the national policy, park rules and regulations and management, and social norms of others' behavior. The whole process properly explains that the environmental education of the Wetland Park has a good educative effect on visitors, and explains the mechanism of carbon offsetting behavior.

4.2. Discussion

At present, there are scholars in the academic circle who use different theoretical models to explain carbon offsetting behavior, but there are few studies on the influence mechanism of carbon offsetting behavior in the context of environmental education in wetland parks. However, this study emphasizes the special context of environmental education in a wetland park and takes this as the starting point to study the mechanism of its impact on tourists' carbon offsetting behavior.

This study uses the grounded theory to conduct qualitative research, and attempts to explore the influencing factors of environmental education in wetland parks on carbon offsetting behavior, and then clarify the process mechanism. However, due to the limited theoretical knowledge reserve,

the concepts and categories extracted in the three-level coding process have certain subjectivity and one-sidedness. Second, this study takes the OCT national wetland park as the research site, and other aspects such as geographical location, construction status and environmental education development may not be consistent with other wetland parks. Therefore, the scope of application of the research conclusions has certain limitations and may not be consistent with similar wetland parks with strong environmental education functions.

5. Conclusion and Suggestions

5.1. Conclusion

Based on the grounded theory analysis, the effect of wetland park environmental education on tourists' carbon offsetting behavior can be summarized as follows: Under the stimulation of the wetland park environmental education context, tourists' environmental restorative perception, environmental education perception and environmental protection emotion are stimulated, and then carbon offsetting consciousness is generated; Under the positive adjustment of social norms, the carbon offsetting behavior is implemented.

Based on the S-O-R theoretical analysis framework, a mechanism explanation model of environmental education in a wetland park for carbon offsetting behavior was established, and the process realization mechanism of environmental education situation → environmental restorative perception/environmental education perception/environmental protection emotion → carbon offsetting consciousness → carbon offsetting behavior was found. Furthermore, the reasonable explanation of this process is the realization of carbon offsetting behavior by environmental education in wetland park.

5.2. Suggestions

According to the theoretical model of impact mechanism constructed by the research, suggestions on the construction of park environmental education in the following three aspects can be provided.

First, natural resources such as the wetland landscape and species diversity should be effectively maintained in the park. The environmental restorative perception, environmental education perception and environmental protection emotion generated by tourists stimulated by the environment and environmental education content are important factors driving the carbon offsetting behavior. Therefore, according to the actual situation of wetland conservation, the park should invest sufficient maintenance funds to ensure the natural features of the wetland park as far as possible; At the same time, limit the flow of visitors and reduce the impact of the outside world on its ecology.

Second, the park should enrich and enrich the content of environmental education, set up ecological education courses and popular science lectures for a wide range of people, and regularly organize public welfare and voluntary activities. Tourists' awareness of carbon offsetting can be strengthened by improving their perception of environmental education, and then their carbon offsetting behavior can be guided. It is worth noting that in the three-level coding process, it is found that social norms promote carbon offsetting behavior; Therefore, from the perspective of social norms of other people's behavior, the activities between participants or staff participating in ecological education courses, popular science lectures, public welfare and voluntary activities and tourists

can be strengthened. This process guides tourists to implement carbon offsetting behaviors to a large extent.

Finally, it is necessary to fully create the environment protection atmosphere of the park, and diversify and enrich the publicity forms. The park can explain to visitors the contribution of the wetland to ecological protection and the achievements since the construction of the park through exhibition boards or explanation systems; And through interesting publicity methods, visitors' awareness and behavior of carbon offsetting can be stimulated.

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