

The Strategies of Higher Education Institution Personnel's Pro-Environmental Behavior in the Tourism College of Zhejiang, Zhejiang Province in the People's Republic of China*



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Abstract

The study aimed to: 1) investigate the current situation, expectations, and demands of HEIs in fostering environmentally friendly personnel; 2) formulate and optimize multidimensional strategies for cultivating PEB personnel; and 3) evaluate the feasibility, accuracy, and satisfaction of these strategies to enhance individual environmental practices. This study employed a mixed-method research design to explore strategies for cultivating pro-environmental behavior (PEB) among personnel in higher education institutions (HEIs), using the Tourism College of Zhejiang (TCZJ) as a case study. The research population consisted of 13,007 students and 16 environmental experts, selected using multi-stage random sampling and purposive sampling, respectively. A total of 373 valid student questionnaires and expert interviews were analyzed. Quantitative data were processed using descriptive statistics (mean, standard deviation, ranking) to assess the current situation of awareness, motivation and behavior toward PEB, while qualitative content analysis was employed to extract expert recommendations for strategy development.

The study found that: 1) the overall level of awareness, motivation, and behavior towards PEBs among personnel at the TCZJ is relatively high. 2) The research identified key areas where strategies can be optimized to enhance environmental education and practices within the institution. 3) The results indicate that the proposed strategy exhibits a high level of both accuracy and feasibility. These findings provide valuable insights for HEIs aiming to foster a culture of environmental responsibility and sustainable practices among their personnel. Results indicate that personnel at TCZJ exhibit high awareness and behavior toward PEB, and that the proposed strategy framework demonstrates strong feasibility and effectiveness, offering valuable implications for HEIs seeking to strengthen environmental sustainability education.

Keywords: Higher Education Institution (HEI); Pro-Environmental Behavior (PEB); Awareness; Motivation; Strategies

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Introduction

In recent years, the balance between economic development and environmental protection has become a global priority (Liu and Zhang, 2021). Xi Jinping, the General Secretary of China, mentioned that protecting the ecological environment as important as protecting one's eyes (Government of China, 2022). As one of China's more economically developed provinces, Zhejiang has a higher habitat sustainability level than most regions in the country (Lin and Hou, 2023). Within this context, HEIs are entrusted with the critical mission of fostering talent equipped with pro-environmental values.

Extant literature confirms that awareness and motivation are key antecedents shaping PEBs (Pestana et al., 2020). This makes HEIs, where students form the main force for future green low-carbon development and the promotion of ecological literacy, a crucial domain for PEB research (Lu, 2018; Wu et al., 2023). However, few studies have delved into the contextual strategies for cultivating PEB within specific institutional settings like tourism colleges.

To address this gap, this study investigates the awareness, motivation, and PEBs of personnel at the Tourism College of Zhejiang (TCZJ). It aims to: comprehensively study the current situation, expectations, and demands for cultivating environmentally friendly personnel; formulate and optimize tailored strategies; and evaluate their implementation effectiveness. The goal is to offer theoretical support and practical guidance for environmental education in HEIs, ultimately promoting individual environmental practices and contributing to ecological civilization.

Objectives of the Research

1. To investigate the current situation, expectations, and demands of HEIs in fostering environmentally friendly personnel using TCZJ as a case study.
2. To formulate and optimize strategies for cultivating PEB personnel at TCZJ.
3. To evaluate the implementation effectiveness of development strategies for cultivating PEB personnel at TCZJ, to promote individual environmental practices.

Research Methodology

This research aims to investigate and develop strategies for promoting PEB among personnel at the TCZJ. The study focuses on understanding the current situation, expectations and needs for such strategies, with the goal of enhancing sustainable practices in the institution. By employing a multi-stage research methodology, the study intends to provide actionable recommendations for improving environmental behavior and implementing effective development strategies within the college. The research is divided into three key stages, as outlined below:



The 1st Step: Investigate the Current Situation, Expectations, and Demands of HEIs in Fostering Environmentally Friendly Personnel

This stage primarily focuses on analyzing the current situation, expectations, and necessity of environmentally-friendly development strategies for personnel at the TCZJ. The study targets the 13,007 students enrolled at the college in the 2024 academic year (Tourism College of Zhejiang, 2024). The research utilizes a multi-staged random sampling method and determines the sample size based on the sampling table from Krejcie and Morgan (1970), selecting 373 participants as the research sample.

The 2nd Step: Formulate and Optimize Strategies for Cultivating PEB Personnel at TCZJ

This stage aims to formulate and improve personnel development strategies that promote PEBs at the TCZJ. The research sample consists of experts who have made significant contributions to environmental protection in HEIs within Zhejiang Province. Two experts are selected from each university, totaling 16 experts, using purposive sampling.

The 3rd Step: Evaluate the Implementation Effectiveness of Development Strategies for Cultivating PEB Personnel at TCZJ

In this stage, the effectiveness of the formulated personnel's PEB development strategies is evaluated. The evaluation will be conducted by two groups: the first group was 150 students to assess their satisfaction with the strategies, and the other group was 10 experts to evaluate the scientific validity and feasibility of the strategies.

Research Results

From the 1st objective, the result of questionnaire shows that the mean and standard deviation of the components of awareness and motivation towards personnels' PEB at TCZJ indicating a high overall level of implementation ability. Among them, the behavior aspect ($\bar{X} = 3.84$) is the first-level indicator with the strongest implementation ability, while the motivation aspect ($\bar{X} = 3.75$) is the first-level indicator with the weakest implementation ability. The perception status aspect ($\bar{X} = 3.90$) is the second-level indicator with the strongest implementation ability, while the value aspect ($\bar{X} = 3.66$) is the second-level indicator with the weakest implementation ability.

Table 1: Means and Standard Deviations of the Components of Awareness and Motivation of PEB for Students in TCZJ in China

Component	$\bar{X}$	S.D.	Level	Rank
1. Awareness	3.80	0.62	High	2
1.1 Aspects of Environmental Education	3.86	0.73	High	2
1.2 Aspects of Attitude and Emotion	3.71	0.90	High	4
1.3 Aspects of Behavioral Tendency	3.72	0.78	High	3
1.4 Aspects of Cognitive State	3.90	0.72	High	1
2. Motivation	3.75	0.65	High	3
2.1 Aspects of Goals	3.68	0.91	High	1
2.2 Aspects of Values	3.66	0.75	High	6
2.3 Aspects of Self-regulation	3.81	0.76	High	5
2.4 Aspects of Needs and Desires	3.79	0.80	High	3
2.5 Aspects of Interests	3.72	0.77	High	4
2.6 Aspects of Environment	3.86	0.84	High	2
3. Behavior	3.84	0.67	High	1
3.1 Private Sphere	3.82	0.81	High	2
3.2 Public Sphere	3.82	0.84	High	2
3.3 Organizational Level	3.89	0.80	High	1
Total	3.85	1.12	High	/

From the 2nd objective, which is to formulate and optimize multidimensional strategies for cultivating PEB personnel, the strategies were developed based on in-depth expert interviews and student feedback. The study developed a comprehensive and multidimensional set of strategies to cultivate PEB among personnel at the TCZJ. The optimized strategies encompass key dimensions as follows:

Diversified Environmental Training System: A multi-tiered training framework was constructed, focusing on customized content for various majors. The training adopts a blended online-offline model, integrating field visits, workshops, and virtual courses. A feedback-driven evaluation mechanism ensures effectiveness and adaptability.

Comprehensive Incentive Mechanism: A dual-layer incentive system combining material and non-material rewards was established. These include scholarships, green innovation awards, honors such as “PEB Pioneer”, and a campus-wide environmental credit system integrated into the students’ overall evaluation. Performance in environmental education, practice, and research contributes to academic and career development.

Immersive Environmental Campus Culture: A vibrant environmental atmosphere was cultivated through activities like environmental festivals, art exhibitions using recycled materials, science drama performances, and green community service. Environmental



themes were embedded into campus design, including eco-gardens, signage, and installations. Media channels (radio, newsletter, social media) amplified visibility and engagement.

Collaborative Institutional Mechanism: A cross-departmental PEB governance framework was introduced. It includes an Environmental Leadership Committee, clear departmental roles (teaching, research, logistics, and administration), and a shared information platform. Performance evaluations of departments include PEB metrics, ensuring long-term engagement and institutional accountability.

These integrated strategies provide a holistic and actionable model for embedding sustainability into the personnel development system of HEIs

From the 3rd objective, the evaluation result showed that the formulated and implemented environmental protection incentive strategies performed well in terms of feasibility and satisfaction. The research results show that both experts and students rated the feasibility and satisfaction of the environmental protection incentive strategies highly. Among them, the strategy of "campus environmental culture construction" had the highest satisfaction, indicating that cultural construction helps to enhance students' environmental awareness and is widely recognized.

The accuracy of the environmental protection strategies was recognized to some extent, but still needs optimization. The research results show that the strategies were relatively accurate, indicating that the majority of respondents believed that the strategies could accurately grasp the key issues of enhancing personnels' environmental awareness and motivation. However, there is still room for improvement in the refinement of the incentive mechanisms and the optimization of the implementation methods.

The New Body of Knowledge

This study contributes a new body of knowledge by integrating behavioral science, environmental education, and higher education administration into a comprehensive framework for enhancing PEB among personnel in Chinese HEIs. Specifically, it offers the following academic contributions:

1. Empirical Evidence from China's Developed Region

By focusing on the TCZJ, this study provides novel empirical data on awareness, motivation, and PEBs of higher education personnel in one economically advanced province of China.

2. Development of Multi-Dimensional Strategy Framework

The study contributes a new four-pronged strategy system integrating awareness, motivation, and behavioral dimensions into the whole strategies, which can be adapted by other HEIs.

- 2.1 Training Strategy: Custom, practice-integrated, blended learning system.
- 2.2 Incentive Strategy: Reward structure integrated with academic performance and motivation.
- 2.3 Cultural Strategy: Immersive green culture driven by media and community.
- 2.4 Organizational Strategy: Institutional collaboration and policy alignment.
3. Data-Informed Governance
- The strategies encourage schools to apply data analytics, environmental scoring, and long-term tracking to personalize interventions and assess efficacy.
4. Replicable Strategic Framework for Institutional Implementation
- This research proposes a replicable model for HEIs combining cognitive, emotional, and structural components of PEB change.
- These contributions collectively expand the global discourse on environmental responsibility in education and offer a localized yet generalizable strategic model for promoting sustainability in higher education.

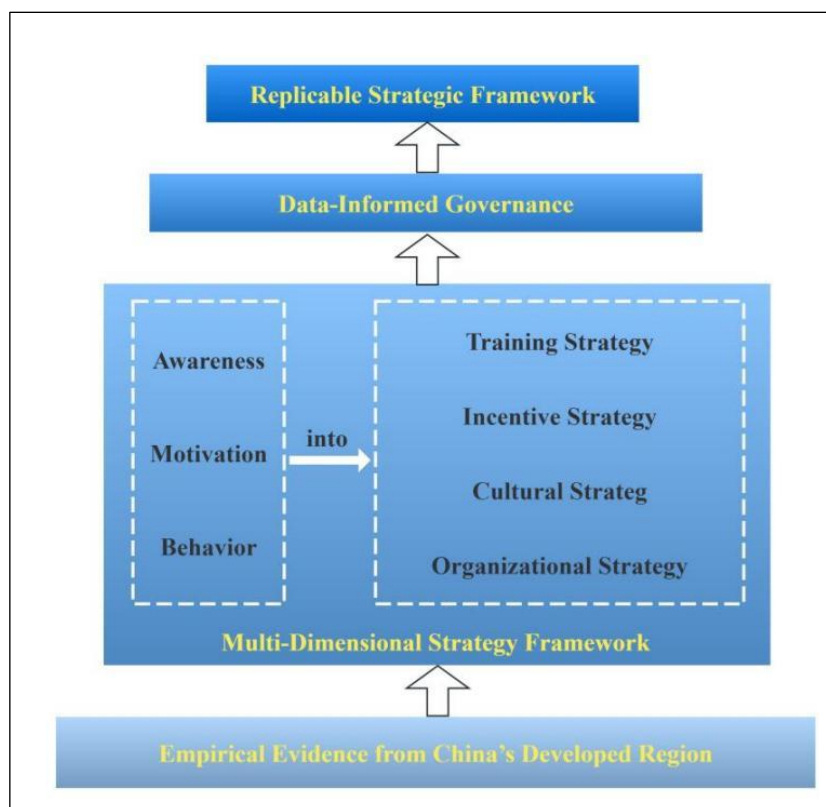


Figure 1: A Multi-Dimensional Strategy Framework for Enhancing PEB in HEIs

Discussion of Research Results

From the research result of the 1st objective, it was found that students in TCZJ demonstrated a generally high level of environmental awareness (mean = 3.80) and motivation (mean = 3.75), with behavior (mean = 3.84) being the highest among the three primary indicators. This is because current environmental education programs and campus



activities provide students with basic environmental knowledge and a positive cognitive attitude towards ecological protection. This finding is consistent with the research of Zhang et al. (2025) and Yuan et al. (2023), who pointed out that Chinese college students have a high level of concern for environmental issues and possess a good foundation of environmental knowledge. However, as in those studies, the transformation of environmental awareness into consistent proactive behavior still needs strengthening. This suggests that while knowledge acquisition is important, behavioral reinforcement mechanisms in HEIs require further development.

From the research result of the 2nd objective, it was found that the multidimensional strategy framework, including diversified environmental training, comprehensive incentive mechanisms, immersive campus culture and collaborative institutional governance, that was highly valued by both experts and students. This is because these strategies not only enhance environmental knowledge but also provide motivation and structural support to encourage sustainable practices on campus. The finding aligns with Li et al. (2019), who emphasized that environmental awareness influences individuals' evaluations of PEB, while motivation significantly affects their interaction with the environment. By combining both cognitive and motivational factors, the proposed strategies strengthen the likelihood that awareness can be transformed into observable environmental behavior, which is consistent with the results of previous studies in Chinese higher education institutions.

From the research result of the 3rd objective, it was found that the feasibility and satisfaction of the proposed environmental protection incentive strategies were rated high by both experts and students, particularly for campus environmental culture construction. This is because cultural initiatives create a strong environmental atmosphere and social influence, which encourage voluntary participation and long-term commitment to PEB. The result is consistent with He (2022), who argued that a culturally integrated governance system enhances environmental awareness and behavioral willingness among students. At the same time, this study also revealed that the precision of strategies requires improvement, as different student subgroups have varying needs and preferences. This observation echoes previous findings suggesting that the diversity of the target population may reduce policy effectiveness during implementation. Therefore, while the strategies demonstrate good feasibility, future refinement should focus on tailoring interventions to different academic majors and student backgrounds to ensure more accurate and impactful outcomes.

Conclusion

This study has provided a comprehensive examination of the strategies for promoting PEB among HEI personnel, using the TCZJ as a case study. The research has successfully achieved its objectives of understanding the current situation, expectations,

and demands of HEIs in developing environmentally friendly personnel, formulating and optimizing strategies for cultivating PEB personnel, and evaluating the implementation effectiveness of these strategies.

In conclusion, this research has contributed valuable insights and practical recommendations for HEIs aiming to foster a culture of environmental responsibility and sustainable practices among their personnel. By strengthening environmental education systems, utilizing big data and artificial intelligence to improve the precision of environmental strategies, conducting long-term follow-up studies, and engaging in international comparative research, universities can continue to enhance their efforts in promoting PEB and contribute to the broader cause of ecological civilization construction and sustainable development. Future research should further explore other variables affecting the environment, optimize environmental education models, and develop suitable environmental management and education courses to elevate the quality of environmental teaching and its practical outcomes.

Suggestions

From the results of the research, the researcher has the following suggestions as follows:

1. The suggestions from the research

From the research result of the 1st objective, it was found that while students have high environmental awareness and motivation, the continuity of behavioral implementation still requires improvement. Therefore, related institutions should apply the following: Incorporate more outdoor experiential learning and environmental volunteering projects into the curriculum. Strengthen continuous reinforcement mechanisms to maintain long-term engagement in PEB activities.

From the research result of the 2nd objective, it was found that a multi-dimensional strategy framework integrating training, incentives, cultural initiatives, and institutional collaboration effectively support PEB development. Therefore, related institutions should apply the following: Develop customized environmental training programs tailored to different majors. Establish an environmental credit system linking green activities to academic evaluation and career development opportunities.

From the research result of the 3rd objective, it was found that while overall satisfaction and feasibility are high, precision in strategy implementation can be improved. Therefore, related institutions should apply the following: Utilize big data analytics and AI tools to identify diverse needs of different student groups. Adjust strategy design accordingly to enhance targeted effectiveness and relevance.

2. The suggestions for future research

Future studies should involve the following issues:

2.1 Examine the role of faculty and staff behaviors in influencing students' PEB development, to capture the broader institutional ecosystem.

2.2 Explore innovative environmental education models, such as gamification and virtual reality, for immersive learning experiences.

2.3 Conduct longitudinal and cross-cultural comparative studies to test the adaptability of the proposed strategy framework across different HEI contexts.

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