

# BMF CP100: Engaging children with nature to cultivate their environmental awareness and protection

*AISDL Team*

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“At sunset, when the slanting rays of the setting sun heads westward in that same bird village, the sound has taken on a different tone, as though it is also saying goodbye to the passing day.

Kingfisher takes note of such a miraculous occurrence. He marvels at the beauty of nature and the purity of bird vocalization, pitying those who have failed to recognize this.”

—In “Conductor”; [Wild Wise Weird](#) (2024)

[COLLABORATIVE PROJECT]

## 1. Project description

### 1.1. Main objectives

The current study is conducted to examine the following research questions:

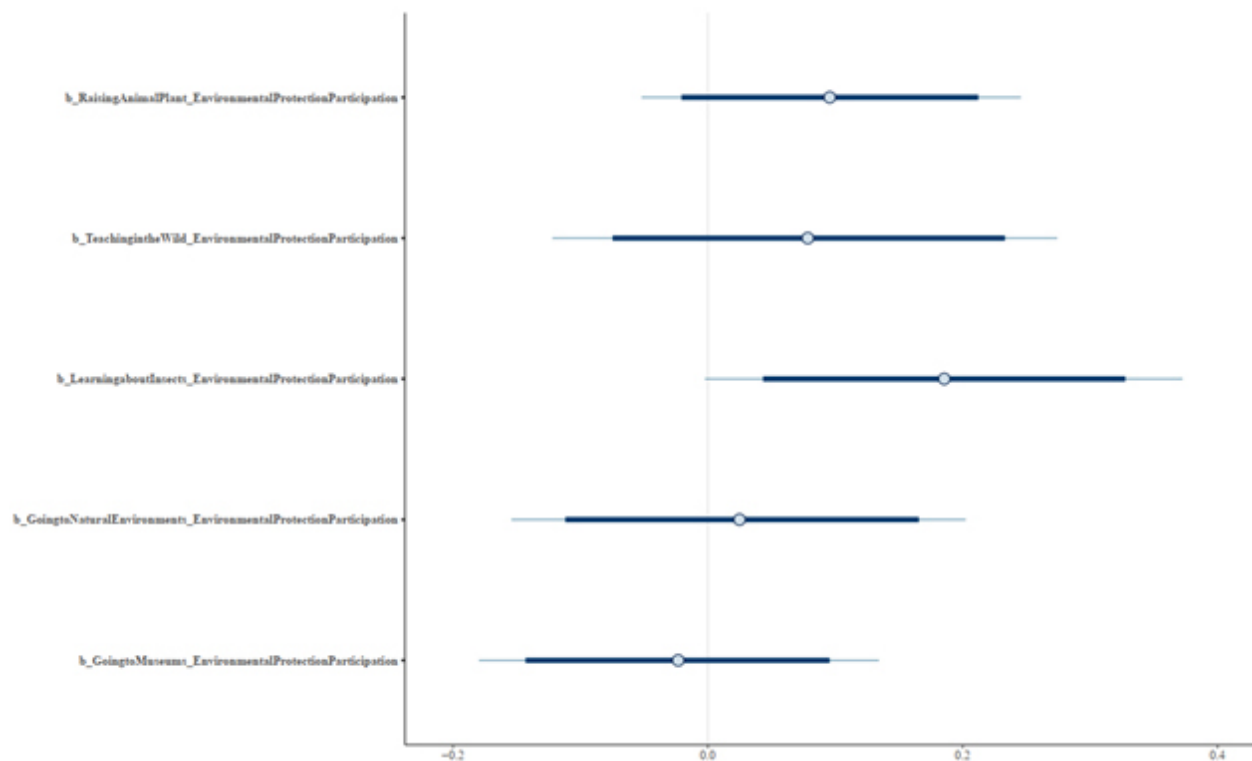
- How is engaging children with nature associated with their environmental awareness?
- How is engaging children with nature associated with their environmental protection participation?

## 1.2. Materials

The granular interaction thinking of mindsponge theory will be used for the conceptual development of this study, while Bayesian Mindsponge Framework (BMF) analytics will be used for statistical analysis [1-4]. The dataset comprises responses from 516 children and their corresponding caregivers in five major urban Chinese cities (Beijing, Harbin, Fuzhou, Guangzhou, and Hangzhou) [5]. Statistical analyses will be conducted using the bayesvl R package, which utilizes the Markov chain Monte Carlo (MCMC) algorithm for estimation [6]. For the sake of research transparency and reducing research and reproducibility costs, we have stored all data and computer code on Zenodo: <https://zenodo.org/records/13859282>.

## 1.3. Main findings

The preliminary analysis shows that the children engaged in raising animals and plants (moderately reliable), learning in the wild (weakly reliable), and learning about insects (highly reliable) tend to have higher levels of environmental awareness (see Figure 1).



**Figure 1:** The estimated posterior distributions

## 2. Collaboration procedure

Portal users should follow these steps for registering to participate in this research project:

1. Create an account on the website (preferably using an institution email).
2. Comment your name, affiliation, and your desired role in the project below this post.
3. Patiently wait for the formal agreement on the project from the AISDL mentor.

If you have further inquiries, please contact us at [aisdl\\_team@mindsponge.info](mailto:aisdl_team@mindsponge.info)

If you have been invited to join the project by an AISDL member, you are still encouraged to follow the above formal steps.

All the resources for conducting and writing the research manuscript will be distributed upon project participation.

AISDL mentor for this project: **Minh-Hoang Nguyen**

AISDL members who have joined this project: Quan-Hoang Vuong, Viet-Phuong La.

The research project strictly adheres to scientific integrity standards, including authorship rights and obligations, without incurring an economic burden at participants' expenses.

## References

[1] Vuong QH. (2023). *Mindsponge theory*. Walter de Gruyter GmbH. <https://www.amazon.com/dp/BOC3WHZ2B3>

[2] Vuong QH, Nguyen MH, La VP. (2022). *The mindsponge and BMF analytics for innovative thinking in social sciences and humanities*. Walter de Gruyter GmbH. <https://www.amazon.com/dp/8367405102/>

[3] Vuong QH, Nguyen MH. (2024). *Better economics for the Earth: A lesson from quantum and information theories*. <https://www.amazon.com/dp/B0D98L5K44>

[4] Vuong QH, Nguyen MH. (2024). Further on informational quanta, interactions, and entropy under the granular view of value formation. <https://dx.doi.org/10.2139/ssrn.4922461>

[5] Jia F, Yu H. (2023). Brief data report on parent-child pro-environmental engagement across five cities in China. *Data in Brief*, **36**, 106970. <https://doi.org/10.1016/j.dib.2021.106970>

[6] La VP, Vuong QH. (2019). bayesvl: Visually Learning the Graphical Structure of Bayesian Networks and Performing MCMC with 'Stan'. *The Comprehensive R Archive Network*. <https://cran.r-project.org/web/packages/bayesvl/index.html>

[7] Vuong QH. (2024). *Wild Wise Weird*. <https://www.amazon.com/dp/BOBG2NNHY6>

