

Human–Nature Relationships and Sustainable Development: Insights from Environmental Studies

Kuldeep Kumar^{1,*}, Govind Singh¹, Dheeraj Kumar Thakur¹

Abstract

The accelerating environmental crisis highlights the need to re-examine the fundamental relationship between humans and nature. Conventional development models often promote a utilitarian view of nature, leading to ecological degradation, biodiversity loss, climate change, and unsustainable resource use. The research problem addressed in this study is the inadequate integration of human–nature relationship perspectives within sustainable development frameworks, despite growing recognition that environmental sustainability depends not only on technological innovations and policy interventions but also on human values, attitudes, and behaviors toward the natural environment. The study adopts a quantitative research approach to examine how perceptions of human–nature relationships influence sustainable development practices across social, environmental, and economic dimensions. Primary data were collected from 220 respondents, including university students and environmental practitioners, using a structured questionnaire and a stratified random sampling technique to ensure representation of different respondent groups. Statistical tools – such as descriptive analysis, correlation, regression, and hypothesis testing – were applied to evaluate the relationships among the study variables and to determine the significance of the proposed hypotheses. The findings reveal a significant positive relationship between harmonious human–nature relationships and sustainable development outcomes, indicating that individuals with stronger ecological awareness and a greater sense of environmental responsibility are more likely to support sustainable behaviors and decision-making. Furthermore, the results demonstrate that environmental values and ethical perspectives serve as important predictors of sustainable development practices, reinforcing the importance of integrating ecological consciousness into development strategies. The study emphasizes that fostering ecological connectedness, environmental stewardship, and ethical responsibility toward nature is essential for achieving long-term sustainability. It further highlights the need for interdisciplinary approaches that combine environmental education, community participation, and evidence-based policymaking to strengthen sustainability initiatives. The results offer important implications for environmental education, policy formulation, and sustainable development planning, while providing valuable insights for researchers, educators, and policymakers seeking to develop more holistic and resilient approaches to balancing human well-being with environmental conservation.

Keywords: Human–nature relationship, sustainable development, environmental studies, ecological consciousness, environmental ethics, sustainability

*Author for Correspondence

Kuldeep Kumar
E-mail: kuldeepsiddharth05@gmail.com

¹Student, P.G., GNIT College of Management, Greater Noida, Uttar Pradesh, India

Received Date: July 06, 2026
Accepted Date: August 15, 2026
Published Date: August 17, 2026

Citation: Kuldeep Kumar, Govind Singh, Dheeraj Kumar Thakur. Human–Nature Relationships and Sustainable Development: Insights from Environmental Studies. Research & Reviews: Journal of Ecology. 2026; 15(2): 38–43p.

INTRODUCTION

Human civilization has historically depended on nature for survival and development. However, the dominant anthropocentric worldview, which views nature primarily as a resource for human exploitation, has resulted in environmental degradation, climate change, biodiversity loss, and ecological imbalance [1]. Sustainable development emerged as a response to these challenges, advocating a balance between economic growth, social equity, and environmental protection [2].

Human–nature relationships form the ethical and philosophical foundation of sustainability. Environmental Studies, as an interdisciplinary field, explores these relationships by integrating ecological science, social sciences, ethics, and policy studies. It emphasizes that sustainable development cannot be achieved without transforming human attitudes, values, and behaviors toward the natural environment [3].

Despite the growing recognition of sustainability, many development initiatives continue to ignore the qualitative aspects of human–nature interactions. This study seeks to examine the role of human–nature relationships in promoting sustainable development from an Environmental Studies perspective [4].

The increasing frequency of extreme weather events, resource depletion, and ecosystem degradation further highlights the urgency of strengthening the connection between people and the natural environment [5]. Environmental sustainability requires not only scientific and technological advancements but also a shift in societal values that encourages environmental responsibility, conservation, and sustainable resource management [6]. Educational institutions, policymakers, and community organizations play a vital role in fostering environmental awareness and promoting behaviors that support ecological resilience. By investigating how individuals perceive and value their relationship with nature, this study contributes to a deeper understanding of the social and ethical dimensions of sustainability [7]. The findings are expected to provide evidence-based insights that can support the development of effective environmental policies, educational programs, and community-based sustainability initiatives aimed at achieving long-term ecological balance and improving the quality of life for present and future generations [8].

Conceptual Framework

The conceptual framework positions Human–Nature Relationship as the independent variable and Sustainable Development as the dependent variable.

Independent Variable: Human–Nature Relationship

- Ecological connectedness.
- Environmental responsibility.
- Respect for nature.
- Stewardship attitude.

Dependent Variable: Sustainable Development

- Sustainable resource use.
- Environmental conservation behavior.
- Support for sustainable policies.
- Long-term ecological balance.

The framework suggests that a positive and harmonious human–nature relationship enhances sustainable development outcomes. Environmental Studies acts as a facilitating discipline that strengthens awareness and ethical understanding [9].

LITERATURE REVIEW

Human–Nature Relationship Perspectives

Gifford (2014) [10] argued that the ecological crisis stems from exploitative human attitudes toward nature [11]. Land ethic emphasized moral responsibility toward ecosystems [12], introduced deep ecology, and advocating intrinsic value of nature.

Human–Nature Relationships and Sustainability

Studies indicate that individuals who perceive themselves as part of nature demonstrate higher pro-environmental behavior [13]. Harmonious human–nature relationships encourage conservation and sustainable lifestyles [14].

Role of Environmental Studies

Environmental Studies integrates scientific knowledge with ethical reasoning [15]. Education that highlights interconnectedness between humans and nature fosters sustainable development values [16].

Empirical Evidence

Recent research confirms that ecological worldviews significantly influence sustainability practices [17]. However, empirical studies quantitatively linking human–nature relationships to sustainable development remain limited [18].

RESEARCH GAP

- Limited quantitative studies on human–nature relationships and sustainability.
- Insufficient integration of ethical and relational perspectives.
- Lack of Environmental Studies–based empirical evidence.

Problem Statement

Modern development practices often neglect the importance of human–nature relationships, resulting in unsustainable environmental outcomes.

Research Questions

- Do human–nature relationships significantly influence sustainable development?
- Which dimensions of human–nature relationships most affect sustainability practices?
- How can Environmental Studies promote sustainable human–nature interactions?

RESEARCH METHODOLOGY

Research Objectives

- To analyze the relationship between human–nature relationships and sustainable development.
- To assess the influence of ecological connectedness on sustainability behavior.
- To provide policy and educational recommendations [19].

Hypotheses

- *H1*: Human–nature relationships have a significant positive impact on sustainable development.
- *H2*: Ecological connectedness positively influences sustainable resource use.
- *H3*: Environmental responsibility significantly affects conservation behavior.

Research Design

Quantitative, descriptive, and explanatory research design.

Sample and Sampling Technique

- *Sample Size*: 220 respondents.
- *Population*: University students and environmental professionals.
- *Sampling Technique*: Stratified random sampling.

Data Collection Method

Primary data collected through a structured questionnaire using a 5-point Likert scale.

Measurement Instruments

- Human–Nature Relationship Scale.
- Sustainable Development Practices Scale.

Variables and Operationalization

The variables were operationalized using specific dimensions and measured through a Likert scale. The human–nature relationship was assessed in terms of connectedness and responsibility toward

nature, while sustainable development was evaluated based on conservation and sustainability. This operationalization provides a clear framework for examining the relationship between ecological attitudes and sustainable development (Table 1) [20, 21].

Table 1. Operationalization of study variables.

Variable	Dimensions	Measurement
Human–Nature Relationship	Connectedness, Responsibility	Likert scale.
Sustainable Development	Conservation, Sustainability	Likert scale.

Data Analysis Techniques

- Descriptive statistics.
- Correlation analysis.
- Regression analysis.
- Hypothesis testing.

Data Analysis and Interpretation

Overall, the findings indicate that respondents have a strong positive relationship with nature and a high level of commitment to sustainable development. The significant positive correlation ($r = 0.71$) suggests that stronger human–nature relationships are associated with greater sustainability orientation. Furthermore, regression analysis shows that human–nature relationship significantly predicts sustainable development ($\beta = 0.67$, $p < 0.001$), highlighting its important role in promoting sustainable practices and ecological awareness [22, 23].

Interpretation

Respondents show strong ecological connectedness and sustainability orientation (Table 2).

Table 2. Descriptive statistics.

Variable	Mean	SD
Human–Nature Relationship	4.18	0.54
Sustainable Development	4.09	0.59

Interpretation

A strong positive correlation exists between human–nature relationships and sustainable development (Table 3).

Table 3. Correlation analysis.

Variables	Correlation (r)
Human–Nature Relationship & Sustainable Development	0.71

Interpretation

Human–nature relationships significantly predict sustainable development outcomes (Table 4).

Table 4. Regression analysis.

Predictor	Beta	p-value
Human–Nature Relationship	0.67	0.000

Interpretation

All the Hypothesis has been accepted (Table 5).

Table 5. Hypothesis testing results.

Hypothesis	Result
H1	Accepted
H2	Accepted
H3	Accepted

FINDINGS AND DISCUSSION

The findings indicate that individuals with stronger ecological connectedness and respect for nature are more likely to engage in sustainable behaviors. The results support environmental ethics and deep ecology theories, emphasizing the importance of relational values in sustainability. Environmental Studies plays a crucial role in shaping these values through education and interdisciplinary learning. Enhances sustainability-oriented environmental education [24].

Limitations

- Limited geographic scope.
- Sample restricted to educated respondents.
- Self-reported data limitations.

Future Scope

- Cross-cultural comparative studies.
- Longitudinal analysis of human–nature values.
- Application in corporate and urban sustainability contexts.

Recommendations

- Integrate human–nature relationship studies into curricula.
- Promote community-based environmental programs.
- Strengthen ethical components in sustainability policies.

Theoretical and Practical Implications

- Extends sustainability theory through relational and ethical perspectives.
- Supports integration of human–nature ethics in policy frameworks.

CONCLUSION

This study demonstrates that sustainable development is deeply rooted in the quality of human–nature relationships. Development models that disregard ecological interconnectedness lead to environmental degradation and long-term unsustainability. The empirical evidence confirms that positive human–nature relationships significantly enhance sustainable development practices. Environmental Studies provides a critical platform for fostering ecological awareness, ethical responsibility, and sustainable behavior. Strengthening human–nature relationships through education, policy, and community engagement is essential for achieving environmental sustainability and intergenerational equity. Furthermore, the findings emphasize that sustainability should be regarded as a shared social responsibility rather than solely an environmental objective. Integrating ecological values into educational curricula, governance frameworks, and development planning can encourage individuals and communities to adopt environmentally responsible lifestyles and informed decision-making practices. Policymakers should prioritize participatory approaches that involve local communities in conservation and resource management initiatives, thereby enhancing the effectiveness of sustainability programs. The study also highlights the importance of interdisciplinary collaboration among environmental scientists, educators, policymakers, and civil society organizations in addressing complex environmental challenges. Future research may expand this work by examining diverse demographic groups, cultural contexts, and longitudinal trends to better understand how evolving human–nature relationships influence sustainable development over time. Such efforts will contribute to more inclusive, resilient, and environmentally responsible development strategies that support both human well-being and ecosystem health.

REFERENCES

1. Altman I, Low SM, eds. Place attachment. Human Behaviour and Environment: Advances in Theory and Research. 1992;12:1–2.
2. Bandura A. Social foundations of thought and action. Englewood Cliffs, NJ. 1986;1986(23–28):2.

3. López-Maldonado YO. Beyond sacred ecology: Indigenous Peoples' observations to advance the understanding of Earth's systems. *Indigenous Peoples' Knowledge and the Sciences*. 2025:156.
4. Bonnes M, Bonaiuto M. Environmental psychology: From spatial-physical environment to sustainable development. *Handbook of Environmental Psychology*. 2002 Mar 7:28–54.
5. Clayton S. Environment and identity. In: *Handbook of Environmental Psychology*. Wiley; 2012. p.164–180.
6. Clayton S, Myers G. Conservation psychology: Understanding and promoting human care for nature. *Environmental Conservation C Foundation for Environmental Conservation*. 2010;37(2):222–225.
7. Ceballos Martínez G, Krstikj A. Psychological restoration and the 2030 Agenda: Educational contributions and implications from a systematic review. *Environmental Education Research*. 2026 Feb 1;32(2):259–289.
8. Daily GC. *Nature's Services: Societal Dependence on Natural Ecosystems*. 793. Island Press. Washington, DC. 1997;794:795.
9. Folke C. Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*. 2006 Aug 1;16(3):253–67.
10. Gifford R. Environmental psychology matters. *Annual Review of Psychology*. 2014 Jan 3;65:541–79.
11. Ives CD, Giusti M, Fischer J, Abson DJ, Klaniecki K, Dorninger C, Laudan J, Barthel S, Abernethy P, Martín-López B, Raymond CM. Human–nature connection: A multidisciplinary review. *Current Opinion in Environmental Sustainability*. 2017 Jun 1;26:106–13.
12. Myers OE Jr, Saunders CD. Animals as links toward developing caring relationships with the natural world. *Children and Nature: Psychological, Sociocultural, and Evolutionary Investigations*. 2002 May 3:153–78.
13. Leiserowitz A. Climate change risk perception and policy preferences: The role of affect, imagery, and values. *Climatic Change*. 2006 Jul;77(1):45–72.
14. Manfredo MJ, Bruskotter JT, Teel TL, Fulton D, Schwartz SH, Arlinghaus R, Oishi S, Uskul AK, Redford K, Kitayama S, Sullivan L. Why social values cannot be changed for the sake of conservation. *Conservation Biology*. 2017 Aug;31(4):772–80.
15. Milfont TL, Duckitt J. The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *Journal of Environmental Psychology*. 2010 Mar 1;30(1):80–94.
16. Nisbet EK, Zelenski JM, Murphy SA. The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*. 2009 Sep;41(5):715–40.
17. Ostrom E. A general framework for analyzing sustainability. *Science*. 2009;325(5939):419–422.
18. Parris TM, Kates RW. Characterizing sustainable development. *Annu Rev Environ Resour*. 2003;28:559–586.
19. Raymond CM, et al. Ecosystem services and relational values. *Ecosyst Serv*. 2013;5:18–26.
20. Schroeder HW. Place experience and meaning. *J Environ Psychol*. 2007;27(4):302–317.
21. Steg L, Vlek C. Encouraging pro-environmental behaviour: An integrative review and research agenda. *J Environ Psychol*. 2009;29(3):309–317.
22. Tuan YF. *Space and place: The perspective of experience*. Minneapolis (MN): University of Minnesota Press; 1977.
23. Turner BL, et al. A framework for vulnerability analysis in sustainability science. *Proc Natl Acad Sci U S A*. 2003;100(14):8074–8079.
24. United Nations Development Programme. *Human development report 2020: The next frontier—human development and the Anthropocene*. New York: United Nations Development Programme; 2020.