

THE DEVELOPMENT OF PRO ENVIRONMENTAL BEHAVIOR RESEARCH IN INDONESIA: A LITERATURE REVIEW

Laura Turena^{1a*}, Budiaman^{2b}, Oot Hotimah^{3c}

¹⁻³Universitas Negeri Jakarta, Indoensia

^{*}¹lauraturena@gmail.com

²budiaman@labshool.id

³oothotimah@unj.ac.id

(*)Corresponding Author

lauraturena@gmail.com

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ABSTRACT

Environmental problems in Indonesia are increasing, which is caused by human behavior is a challenge in itself, therefore the way we act needs to adopt pro-environmental behavior. Research on pro-environmental behavior is dominated by the use of literature review from a few years, which relates to critical validity problems. The present review aims to acquaint researchers across disciplinary borders with the behavioral paradigms developed to study pro-environmental behavior in different domains. A paper provides a literature review pro environmental behavior across Indonesia using Google scholar indexed Sinta in 2023. Among, Many publication the most dominant research designed was quantitative and has been done in Java. in research requires not only one group but by many age groups. Unfortunately, the category of respondents of many is the age of millennials and gen z, which are students or college students. Based on the research findings, several recommendations have been proposed for future research. These recommendations include that the research method used should be qualitative or mixed methods and the respondents used should be elderly or older adults. Research should not be concentrated in major cities in Indonesia but spread to other cities.

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INTRODUCTION

The Industrial Revolution represents a historically significant turning point in the development of human civilization and has played an important role in increasing human prosperity. Since the beginning of industrialization, human societies have experienced rapid and continuous changes in trends, lifestyles, patterns of behavior, and social structures across different periods. Although these transformations have contributed substantially to economic growth and technological advancement, they have also made human life increasingly complex and have generated various social and environmental challenges. These challenges include growing inequality, excessive exploitation of natural resources, and the emergence of consumerist lifestyles. The expansion of industrial production and consumption has consequently contributed to the deterioration of environmental quality, including global warming, resource depletion, biodiversity loss, and ecosystem degradation. These environmental crises increasingly threaten human sustainability and make communities more vulnerable to various natural and climate-related disasters (Thondhlana, 2018).

In Indonesia, concerns regarding environmental quality have continued to increase. The Environmental Quality Index serves as an important indicator of national environmental management performance and provides a reference for

various stakeholders in assessing the effectiveness of environmental protection and management. This index generally reflects several important environmental dimensions, including water quality, air quality, and changes in land cover. The relationship between economic growth and environmental quality has become an important issue in Indonesia. During the period from 2017 to 2020, the increasing pace of economic growth was associated with environmental pressures in the country's 34 provinces. This condition is particularly concerning because Indonesia has been identified as one of the major contributors to CO₂ emissions after Brazil. Several sectors, including the food and beverage industry, textile industry, construction, wholesale and retail trade, and electrical equipment, have contributed significantly to the generation of emissions and environmental waste (Tesalonika & Sutjipto, 2023).

Environmental quality is an important indicator in assessing the well-being and sustainability of a region. The Environmental Quality Index is used to evaluate environmental conditions through several parameters, including air, water, and land quality. In recent decades, growing attention has been directed toward environmental quality as the impacts of climate change, pollution, and natural resource degradation have become increasingly visible. Environmental degradation not only affects ecological systems but also has significant implications for human health, economic productivity, social welfare, and the sustainability of future generations. Consequently, environmental issues have become an interdisciplinary concern involving environmental science, economics, public policy, sociology, psychology, and behavioral studies.

One of the important areas of research in this context is the relationship between environmental conditions and pro-environmental behavior. Pro-environmental behavior refers to individual or collective actions intended to minimize negative impacts on the environment and contribute to environmental sustainability. Such behavior may include recycling, reducing energy consumption, conserving water, minimizing the use of single-use plastics, using environmentally friendly transportation, purchasing sustainable products, and participating in environmental conservation activities. Pro-environmental behavior can be influenced by various factors, including environmental awareness, personal values, attitudes, perceived responsibility, social norms, environmental knowledge, institutional policies, and the availability of supporting facilities. The degradation of environmental quality may encourage individuals to engage in more proactive environmental actions, either as a result of personal awareness and moral responsibility or in response to regulations and policies implemented by governments (De Groot & Steg, 2009).

Research on pro-environmental behavior in Indonesia has increased in recent years in response to growing concerns about environmental problems at both global and local levels (Irawan et al., 2022). This growing research interest reflects the increasing recognition that environmental sustainability cannot be achieved solely through technological innovation, economic policies, or government regulations. Individual and collective behavior also plays a crucial role in determining the success of environmental protection efforts. Environmental problems such as climate change, air and water pollution, deforestation, plastic waste, biodiversity loss, and marine ecosystem degradation require changes in human behavior alongside structural and institutional interventions.

Indonesia faces particularly complex challenges in promoting environmental sustainability because it is an archipelagic country characterized by extensive natural resources and extraordinary biodiversity. At the same time, rapid urbanization, population growth, industrialization, economic expansion, and changing consumption patterns continue to generate significant environmental pressures. These conditions make the study of pro-environmental behavior increasingly important for understanding how individuals, communities, industries, and government institutions respond to environmental challenges. The development of research in this field can provide valuable insights into the factors that encourage or hinder environmentally responsible behavior in the Indonesian context.

Therefore, examining the development of research on pro-environmental behavior in Indonesia is important for identifying emerging research trends, dominant themes, theoretical perspectives, methodological approaches, and areas that remain underexplored. A comprehensive review of existing studies can provide a clearer understanding of how pro-environmental behavior has been conceptualized and investigated in Indonesia. Furthermore, mapping the development of this research can help identify changes in scholarly attention over time and reveal the extent to which Indonesian research has addressed contemporary environmental challenges. Such an analysis is expected to contribute to the development of future research agendas and provide a foundation for designing more effective environmental policies, educational programs, community interventions, and sustainability initiatives in Indonesia.

RESEARCH METHODS

This study employed a literature review approach to analyze existing research on pro-environmental behavior in Indonesia. The data sources consisted of scholarly publications indexed in Google Scholar and SINTA, with a focus on articles published up to 2023. The review covered various dimensions of pro-environmental behavior, including individual, community, and institutional behavior, and incorporated studies from multiple disciplines, such as psychology, sociology, economics, and environmental science (Fauzi & Pradipta, 2018). The reviewed studies included both quantitative and qualitative research, allowing the study to provide a broader understanding of the development, characteristics, and methodological tendencies of pro-environmental behavior research in the Indonesian context.

The research design began with the systematic search and collection of relevant scholarly articles from Google Scholar and SINTA. The inclusion criteria consisted of publications related to pro-environmental behavior, studies conducted in the Indonesian context, and articles that were relevant to the focus of the review. The search process also considered publications available up to 2023 in order to identify the development of research within the selected period. Articles that did not directly address pro-environmental behavior or were not sufficiently related to the Indonesian context were excluded from the analysis. The selected articles were subsequently organized and examined to identify recurring topics, research patterns, and developments in the field.

The data collection process used several keywords, including “perilaku pro-lingkungan,” “pro-environmental behavior,” “environmental quality,” and “Indonesia.” The identified studies were then analyzed thematically to explore emerging patterns and research trends related to pro-environmental behavior. The analysis focused on identifying the main themes, research contexts, populations or units of analysis, and methodological approaches used in the reviewed studies. The findings of this literature review were subsequently used to understand the current development of pro-environmental behavior research in Indonesia and to identify potential directions for future research in this field.

RESULTS AND DISCUSSION

Research Design and Methodological Trends

The analysis of the reviewed literature indicates that quantitative research has been the dominant methodological approach in studies of pro-environmental behavior in Indonesia. Compared with qualitative research, quantitative studies appear more frequently and generally focus on measuring the relationships between environmental attitudes, knowledge, values, social norms, environmental awareness, and pro-environmental behavior. This tendency is consistent with broader patterns in environmental and behavioral research, in which quantitative methods are frequently used to operationalize behavioral constructs and examine relationships among variables (Goktas et al., 2012).

The dominance of quantitative research reflects the strong emphasis on measurement, hypothesis testing, and statistical analysis in the study of pro-environmental behavior. Through quantitative approaches, researchers can examine the relationship between independent and dependent variables and identify factors that significantly influence environmentally responsible behavior. Quantitative methods also facilitate the empirical testing of established theories and models, allowing researchers to evaluate whether theoretical assumptions are supported by evidence from the Indonesian context (Datau et al., 2019).

In addition, quantitative research enables researchers to generate findings that can potentially be generalized to broader populations when appropriate sampling procedures are applied. This characteristic is particularly important for environmental policy and intervention design because the findings may provide evidence for developing broader strategies to promote pro-environmental behavior. However, the dominance of quantitative approaches also suggests that certain aspects of environmental behavior may remain insufficiently explored, particularly the meanings, motivations, experiences, and social contexts underlying individual and collective environmental actions.

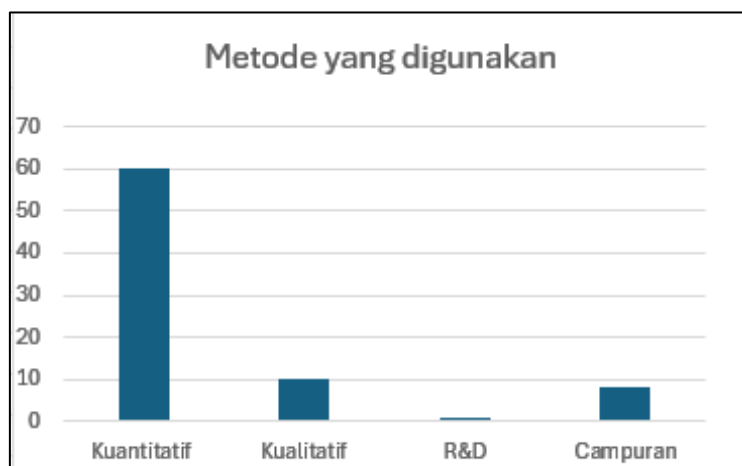


Figure 1. Distribution of Research Designs Focusing on Pro-Environmental Behavior

The relatively limited use of qualitative research represents an important opportunity for future research. Qualitative approaches can provide a deeper understanding of how pro-environmental behavior is formed, negotiated, and practiced in different social and cultural contexts. Although qualitative research has historically been less dominant in environmental research, its use has increased because of its ability to explore complex social phenomena in depth (Noël et al., 2021). In the context of pro-environmental behavior, qualitative studies can examine how individuals interpret environmental problems, how personal experiences shape environmental values, and how communities develop collective environmental practices.

Qualitative research is also particularly relevant for understanding the role of personal and social factors in shaping pro-environmental behavior. Individual values, intrinsic motivation, environmental knowledge, and direct experiences with environmental problems may influence how people respond to environmental challenges. Personal background and life experiences may also shape different interpretations of environmental responsibility and sustainability (Gifford & Nilsson, 2014). Furthermore, pro-environmental behavior is influenced by social norms, environmental awareness, and support from organizations and communities. Social norms that encourage environmentally responsible practices, such as waste management, energy conservation, and sustainable consumption, may contribute to the development of environmentally friendly habits (Saracevic & Schlegelmilch, 2021). Institutional and organizational support, including support from government agencies and non-governmental organizations, can further facilitate behavioral change by providing resources, knowledge, and opportunities for participation in environmental activities (Walton & Austin, 2011).

The findings therefore suggest that future research should move beyond the dominant quantitative paradigm and increasingly employ qualitative and mixed-methods approaches. A combination of quantitative measurement and qualitative exploration could provide a more comprehensive understanding of pro-environmental behavior by simultaneously identifying measurable behavioral determinants and explaining the social, cultural, and contextual processes underlying those behaviors.

Geographical Distribution of Research

The geographical distribution of the reviewed studies reveals a considerable concentration of research on the island of Java. This pattern is understandable because Java is the most densely populated and economically developed region in Indonesia. It is also a major center of industrial activity, urbanization, education, and research institutions. These characteristics make Java an important location for studying environmental issues and pro-environmental behavior.

However, the concentration of research in Java also creates a geographical imbalance in the development of knowledge about pro-environmental behavior in Indonesia. Indonesia consists of diverse regions with different ecological conditions, cultural traditions, socioeconomic structures, and environmental challenges. Therefore, findings derived primarily from urban and highly developed areas of Java may not adequately represent the environmental behavior of communities in Sumatra, Sulawesi, Kalimantan, Papua, and other regions.

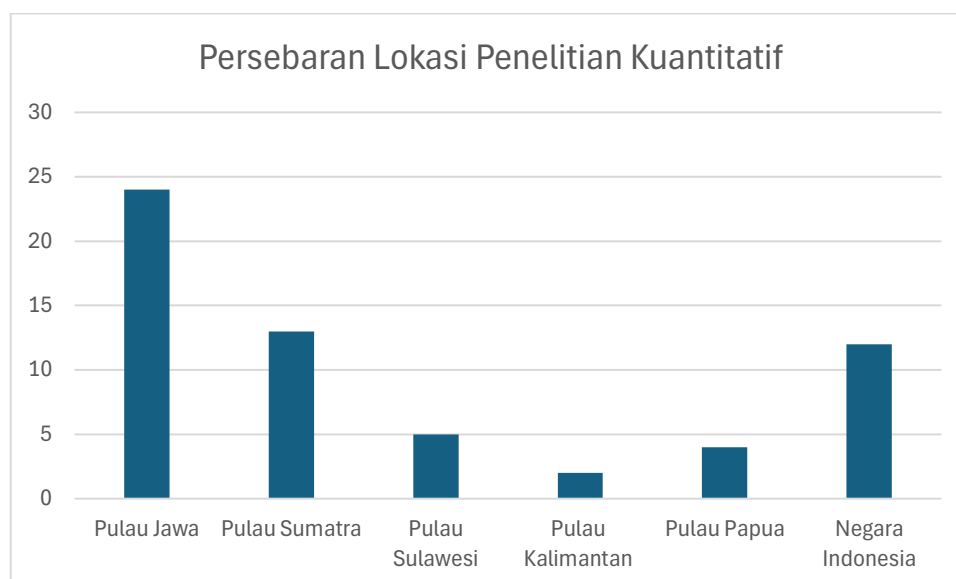


Figure 2. Geographical Distribution of Pro-Environmental Behavior Research in Indonesia

The environmental challenges faced by Java are complex and include air pollution, deforestation, land degradation, urban expansion, waste management problems, and coastal degradation. Research conducted in Java has examined various aspects of landscape transformation and environmental resource management. Studies have also addressed geomorphological change, land-use change, urban expansion, deforestation, and coastal erosion (Nofirman et al., 2023). These issues demonstrate the importance of sustainable land-use planning, conservation strategies, and region-specific environmental policies.

Research on environmental management in Java has also highlighted the importance of sustainable resource management, particularly in relation to water resources, forests, and coastal ecosystems. Sustainable planning is essential for responding to environmental pressures in small islands and coastal areas. Similarly, environmental governance and forest resource management require community empowerment and the implementation of sustainable development principles to address deforestation and habitat loss.

Nevertheless, the dominance of Java in the existing literature should not be interpreted as an indication that other regions are less important. On the contrary, the geographical diversity of Indonesia provides significant opportunities for developing comparative studies across regions. Environmental behavior in rural communities, coastal areas, indigenous communities, small islands, and remote regions may differ substantially from behavior in large urban centers. Future studies should therefore expand beyond major cities and Java-based research settings to provide a more representative understanding of pro-environmental behavior across Indonesia.

The expansion of research locations is also important for developing context-sensitive environmental policies. Local communities often possess valuable knowledge regarding environmental changes and resource management practices in their respective areas. Consequently, community involvement should become an important component of future research. In addition, the use of technologies such as satellite mapping, environmental sensors, and big data analysis may improve the accuracy and efficiency of environmental monitoring (Kadir & Prasetyo, 2023). The integration of historical data, field observations, and previous research findings can also provide a more comprehensive understanding of environmental challenges and sustainability opportunities in different regions of Indonesia (Widianingsih & Trihadiningrum, 2019).

Research Participants and Population Characteristics

Another important pattern identified in the reviewed literature concerns the characteristics of research participants. Existing studies tend to focus on younger populations, particularly millennials, Generation Z, students, and university

students. This tendency may be related to the accessibility of these groups as research participants, especially in educational institutions. Students are also frequently selected because they are considered an important population for studying environmental knowledge, attitudes, values, and behavioral intentions.

However, the concentration of research on young people creates a limitation in understanding pro-environmental behavior across different stages of life. Older adults and elderly populations remain relatively underrepresented in the existing literature. This is an important research gap because environmental attitudes and behaviors may vary according to age, life experience, economic conditions, social roles, and exposure to environmental changes.

Future research should therefore include a broader range of age groups and compare pro-environmental behavior across generations. Comparative studies involving adolescents, young adults, middle-aged adults, and older adults may provide more comprehensive insights into how environmental behavior develops and changes throughout the life course. Research involving older adults may also reveal valuable perspectives based on long-term experiences with environmental transformation and changes in local ecosystems.

Implications for the Development of Pro-Environmental Behavior Research in Indonesia

The findings of this literature review indicate that research on pro-environmental behavior in Indonesia has developed considerably but remains characterized by several methodological, geographical, and demographic limitations. First, quantitative research continues to dominate the field. Although quantitative research is important for measuring behavioral relationships and testing theoretical models, qualitative and mixed-methods approaches are needed to explore the deeper social and cultural dimensions of pro-environmental behavior. Second, research is geographically concentrated in Java, particularly in major urban and economically developed areas. This concentration may limit the generalizability of existing findings to the broader Indonesian context. Indonesia's geographical and cultural diversity requires research that includes different regions, including rural areas, coastal communities, small islands, and remote regions. Third, the reviewed literature indicates a strong focus on young participants, particularly students and members of the millennial and Generation Z populations. Future studies should include older adults and other underrepresented demographic groups to produce a more comprehensive understanding of pro-environmental behavior across the life course.

Taken together, these findings suggest that future research should adopt a more diverse and inclusive research agenda. Methodologically, researchers should expand the use of qualitative and mixed-methods designs. Geographically, studies should be conducted across a wider range of Indonesian regions. Demographically, research should include diverse age groups and social backgrounds. Such developments would contribute to a more comprehensive understanding of pro-environmental behavior and provide stronger evidence for the development of environmental education, public policy, community-based interventions, and sustainability programs in Indonesia.

CONCLUSION

This literature review examined the development of research on pro-environmental behavior in Indonesia by focusing on methodological approaches, geographical distribution, and the characteristics of research participants. The findings indicate that quantitative research remains the dominant approach in the existing literature. Although quantitative methods are important for measuring relationships between variables and testing theoretical models, the limited use of qualitative and mixed-methods approaches indicates the need for deeper exploration of the social, cultural, and contextual factors underlying pro-environmental behavior.

The review also reveals a considerable geographical concentration of research in Java, particularly in major urban and economically developed areas. While Java represents an important context for studying environmental behavior due to its population density, industrialization, and environmental pressures, this concentration limits the representation of Indonesia's broader geographical and sociocultural diversity. Research in other regions, including rural areas, coastal communities, small islands, and remote areas, remains important for developing a more comprehensive understanding of pro-environmental behavior in Indonesia.

In addition, the reviewed studies tend to focus on younger populations, particularly students, millennials, and Generation Z. This pattern highlights the need for future research to include broader age groups, particularly middle-aged and older adults, whose environmental experiences and behavioral patterns may differ from those of younger generations. Accordingly, future research should adopt more diverse methodological approaches, expand geographical coverage beyond Java, and include more varied demographic groups. Such efforts will contribute to a more representative and

comprehensive knowledge base for developing environmental education, public policies, community-based interventions, and sustainability programs in Indonesia.

REFERENCES

- Austin, M., & Walton, T. (2011). Pro-environmental behavior in an urban social structural context. *Sociological Spectrum*, 31, 260–287. <https://doi.org/10.1080/02732173.2011.557037>
- Datau, R., Putrawan, I. M., & Sigit, D. V. (2019). Hubungan kepribadian (Big Five personality) dengan perilaku pro-lingkungan (pro-environmental behavior) siswa. *IJEEM: Indonesian Journal of Environmental Education and Management*, 4(2).
- De Groot, J. I. M., & Steg, L. (2009). Mean or green: Which values can promote stable pro-environmental behavior? *Conservation Letters*, 2(2), 61–66. <https://doi.org/10.1111/j.1755-263X.2009.00048.x>
- Fauzi, A., & Pradipta, I. W. (2018). Research methods and data analysis techniques in education articles published by Indonesian biology educational journals. *JPBI*, 4(2), 123–134.
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International Journal of Psychology*, 49(3), 141–157. <https://doi.org/10.1002/ijop.12034>
- Goktas, Y., Hasancebi, F., Varisoglu, B., ..., & Sozbilir, M. (2012). Trends in educational research in Turkey: A content analysis. *Educational Sciences: Theory & Practice*, 12(1), 455–460.
- Irawan, E., Elia, A., & Benius. (2022). Interactive effects of citizen trust and cultural values on pro-environmental behaviors: A time-lag study from Indonesia. *Heliyon*, 8(3), e09139. <https://doi.org/10.1016/j.heliyon.2022.e09139>
- Kadir, K., & Prasetyo, O. R. (2023). Mengapa petani di Pulau Jawa lebih produktif dibanding petani di luar Pulau Jawa? In *Seminar Nasional Official Statistics* (Vol. 2023, No. 1, pp. 127–138).
- Nofirman, N., Harahap, M. A. K., & Machzumy, M. (2023). Studi geomorfologi dan perubahan lanskap dalam konteks perubahan lingkungan di Pulau Jawa. *Jurnal Geosains West Science*, 1(3), 126–133.
- Noël, C., Vanroelen, C., & Gadeyne, S. (2021). Qualitative research about public health risk perceptions on ambient air pollution: A review study. *SSM – Population Health*, 15, 100879. <https://doi.org/10.1016/j.ssmph.2021.100879>
- Saracevic, S., & Schlegelmilch, B. (2021). The impact of social norms on pro-environmental behavior: A systematic literature review of the role of culture and self-construal. *Sustainability*, 13, 5156. <https://doi.org/10.3390/su13095156>
- Tesalonika, A., & Sutjipto, H. (2023). Human capital dan masyarakat ekonomi sirkular: Teologis keberlanjutan global di Indonesia. *Economic Military and Geography Business Review*, 1(1), 1–18. <https://doi.org/10.61511/emagrap.v1i1.2023.94>
- Thondhlana, G. (2018). Pro-environmental behaviour in student residences at Rhodes University, South Africa. *Sustainability*, 10(8), 2746. <https://doi.org/10.3390/su10082746>
- Tian, H., & Liu, X. (2022). Pro-environmental behavior research: Theoretical progress and future directions. *International Journal of Environmental Research and Public Health*, 19(11), 6721. <https://doi.org/10.3390/ijerph19116721>
- Widianingsih, I., & Trihadiningrum, Y. (2019). Profil dan tantangan lingkungan hidup di Pulau Jawa: Tinjauan dari perspektif peneliti lingkungan. *Jurnal Lingkungan dan Pembangunan Berkelanjutan*, 12(3), 101–115.