# The Role of Transformational Leadership to Support Pro-Environmental Behavior: A Bibliometric Review

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**Abstract.** Pro-environmental behavior (PEB) has long been considered one of the most important issues in both academics and business. This study's main objective is to discover current research advancements and developmental trends in PEB by performing a thorough examination of the body of existing literature. The study also tries to align present research interests with potential future research areas in PEB. Bibliometric approaches were utilized to examine the impact of transformational leadership on pro-environmental behavior in order to provide a pertinent reference for future research. There was a total of 28 articles about transformational leadership on pro-environmental behavior from 2013 to 2023 among the publications for this study that were taken from the Scopus database. Researchers do co-authorship, co-occurrence, and citation analysis using VOSviewer software. The discovery of the concept of leadership and pro-environmental behavior studies, which can help in the construction of conceptual frameworks in future research, is the significance of this study. Meanwhile, the study's limitation is that the publications it analyzed were all retrieved from the Scopus database, thus it lacks comparable data. Therefore, future research will need to use a comparative analytic strategy that incorporates several databases.

**Keywords:** Transformational leadership, pro-environmental behavior, bibliometric.

## 1    Introduction

The greatest contributor to climate change and source of many pollution risks is the usage of energy resources, particularly fossil fuels for transportation, power, heating, and industry for two-thirds of all global greenhouse gas emissions [1]. Countries all over the world still face environmental issues problem [2]. Numerous studies have been conducted in an effort to increase knowledge, decrease the use of fossil fuels, and lessen the environmental effects of greenhouse gas emissions and other forms of pollution. Increasing efficiency, making structural changes, and changing behavior are the methods for reducing the consumption of fossil fuels [3]. The actions of em-

ployees who care about the environment include their desire to learn more about it, their creation and implementation of ideas to lessen the company's environmental impact, their handling of product recycling, their promotion of resource-use efficiency, and their skepticism of practices that could harm the environment. These are all illustrations of how staff members act and conduct themselves in a way that shows concern for the environment, afterwards referred to as pro-environmental behavior [4–6]. [7] conducted study and found that an organization can improve its environmental management by managing its people resources. According to his research, environmentally conscious human resource management influences employees' eco-friendly behavior favorably. Transformational leadership that is environmentally friendly is crucial for HR effectiveness [8]. This study strengthens earlier studies that found that leadership has a significant impact on HR management, which in turn affects innovations in environmentally friendly businesses. [5] also looked at the relationship between motivation and pro-environmental behavior in transformational leadership related to environmental issues. They found that this relationship is related to both internal and external motivation of employees. Positive relationships exist between autonomous motivation and pro-environmental conduct.

The stronger the connection between an employee's job motivation and leadership and conduct, the more likely it is that the leader will encourage pro-environmental behavior [9–11]. Only transformative leadership can produce excellent organizational results [12]. Transformational leadership is a process that enables a leader to inspire and motivate their team members to achieve at their highest levels while also increasing work satisfaction, organizational commitment, and employee behavior related to pro-environmental aspects [13, 14]. Through coaching, mentoring, the providing of challenges, and support, transformational leadership builds the leadership capacity of subordinates. It also motivates followers to support the mission and objectives of the organization [15]. There have been numerous studies on employee pro-environmental behavior, including ones on the influence of employee perceptions of leadership, values, and motivation [4]. This study shows that perceptions of transformative leadership among employees have a significant impact on how pro-environmental personnel behavior. Although the relationship between the idea of transformational leadership and practitioners and academics is growing, there are not many comprehensive bibliometric studies that have been researched and studied the expanding body of literature on pro-environmental conduct. The direction, structure, and shape of the study domain can be provided as it develops and progresses thanks to this bibliometric method [16]. We can evaluate academic papers and citations that have been employed in research by using bibliometric methods. This study aims to identify and examine the linkages, important contributions, and effects of works in the field of transformational leadership on the context of pro-environmental behavior.

## 2      Method

Researchers in business and management are increasingly analyzing and comparing authors, works, journals, and nations using the bibliometric technique [17]. A method

for assessing and analyzing academic literature that has been published is called bibliometrics. Numerous bibliographic aspects are looked at, such as the number of publications, citations, social networking (co-authorship), and major subject trends. The researcher also viewed co-authors, co-occurrences, and citations while performing the study using the VOSviewer software. Additionally, VOSviewer can be used to contrast and compare various things [18]. This study employed a five-step methodology that was modified from the findings [19], as shown in Figure 1 below:
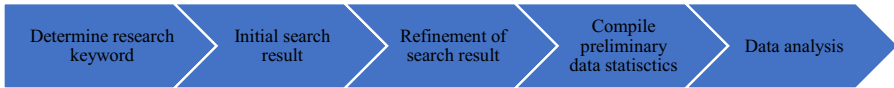


**Fig. 1.** Steps of Bibliometric Analysis

In order to retrieve results from the Scopus database, the researcher chooses research keywords using "Transformational leadership" and "pro-environmental behavior". Scopus databases was used to search the article that has specific keywords. Researchers ran searches using only "title words" and "keywords" for the terms "Journal". According to the findings, there were 28 articles in a decade from 2013 to 2023 that discussed role transformational leadership on pro-environmental behavior. The RIS formatted results include other necessary data such as title, affiliation, summary, keywords, researcher name, references, and more. When retrieving and indexing articles, Scopus only chooses works from the journal categories. The components of journal articles are checked first, and if any are lacking, the researcher will complete them. These components include the year of publication, volume, number of pages, and so on. To do bibliometric analysis and visualize the research network, VOSviewer software was employed. In order to help analyze the metadata, VOSviewer is used as data collection tool that provides a variety of fascinating analyses, visualizations, and surveys. Based on co-citing, keyword attribution, and co-citations, VOSviewer also assigns publisher, author, and journal attributions.

## 3      Result and Discussion

This study examined the literature on the topics of "transformational behavior" and "pro-environmental behavior" from journals in the Scopus database, which covered the years 2013 to 2023. The three aspects are co-authorship, co-accuracy, and citations. The bibliometric study was completed using the VOSviewer program. When submitting co-authorship, co-occurrence, and citation data, the researcher uses the least occurrence restriction of 1. The graph of the number of publications is displayed in figure 2 below:
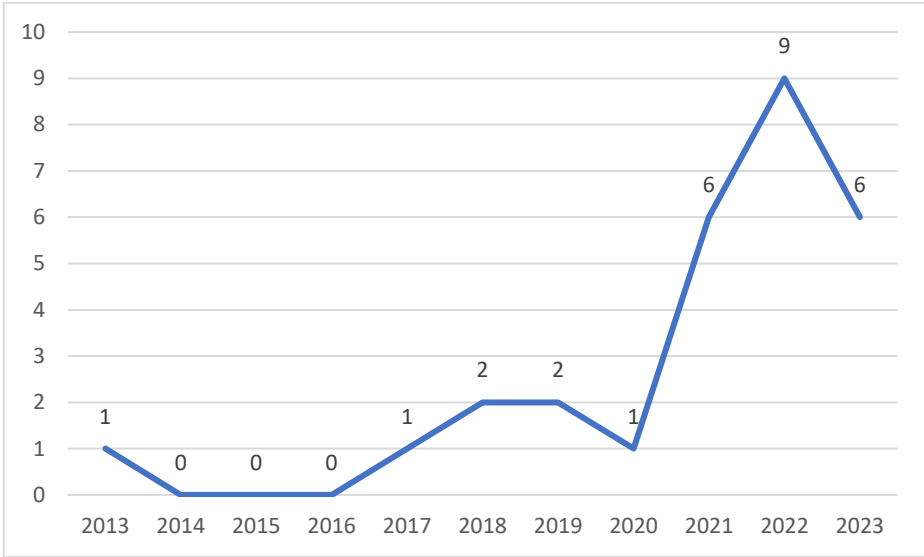
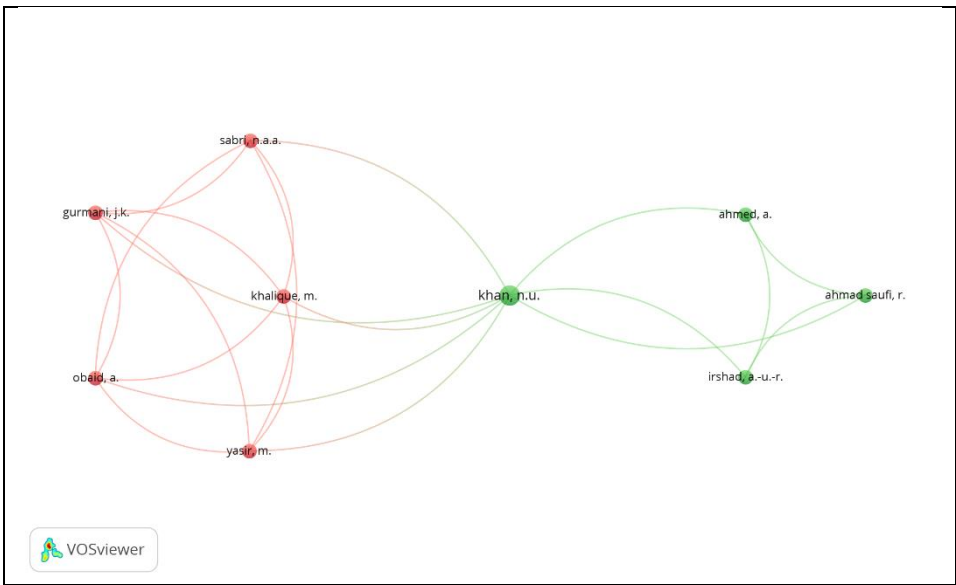**Fig. 2.** Number of Publications



**Fig. 3.** Co-authorship based in author name

According to figure 3, it can be seen that there are 9 authors that divided to two different line, red line about the topic of transformational leadership effect of pro-environmental behavior meanwhile green line related to environmental performance and environmental effect.
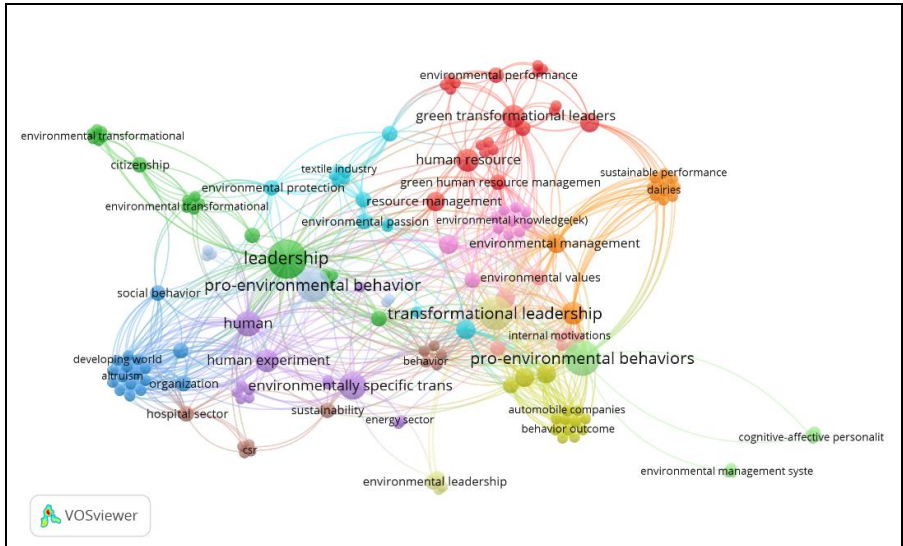
**Fig. 4.** Co-occurrence based on keywords

The phrase " transformational leadership and pro-environmental behavior" dominates research during 2013 to 2023. It is linked to green transformational leaders, environmental performance, sustainable performance, and environmental management. Further study into the relation of environmental leadership and environmental performance in various sector might use this as a starting point.
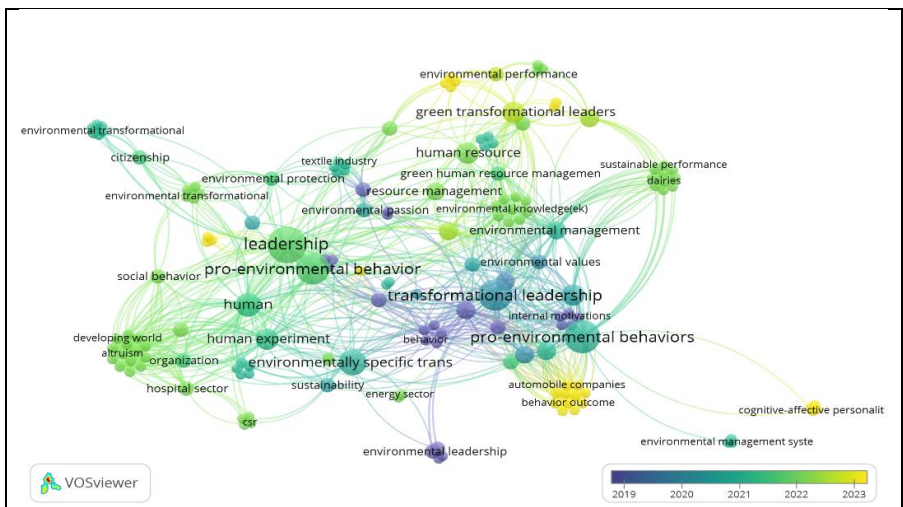


**Fig. 5.** Co-occurence based in year

According to Figure 5, it can be seen that the most dominant research conducted rang-ing from 2013 to 2023 was about transformational leadership related to pro-environmental behavior, this is must be related to the Covid-19 aspects that growing the attention to research in this area. This finding is expected to be a reference in fu-ture research to raise topics related to other aspects of pro-environmental behavior in individual and organizational aspects related to green transformational leadership to environmental performance and sustainable environment. Analysis of the cluster of most dominant topic can be seen in Table 1 below:

**Table 1.** Keyword Cluster in Transformational Leadership on Pro-Environmental Behavior

| Cluster | Concept Name |
|---------|-------------|
| Cluster 1 | Environmental performance, ghrm, green human resource behavior, green trans-formational leadership, pro-environmental behavior, task-related green behavior, job satisfaction, psychological safety, safety, smes sector |
| Cluster 2 | Behavioral research carbon, citizenship, employee's pro-environmental behavior, hospitality sector, leader-member exchange, organizational citizenship behavior |
| Cluster 3 | Carbon footprint, environmental impact, environmental footprint, social behavior, social responsibility |
| Cluster 4 | Automotive industry, autonomous motivation, behavior outcomes, climate change, personnel training, motivation |
| Cluster 5 | Cognitive-affective behavior, environmental consciousness, subjective well-being, team pro-environmental behavior |
| Cluster 6 | Environmental protection, environmental sustainability, green behavior intention, green economy, green leadership, green training, psychological green climate |
| Cluster 7 | Ghrm practices, pro-environmental attitude, sustainable behavior, sustainable de-velopment, sustainable performance |
| Cluster 8 | Corporate environment, CSR, de-carbonization, sustainability, tourism and hospi-tality, tourism management |
| Cluster 9 | Environmental knowledge, resource allocation, natural resource management |

This finding is expected to be a reference in future research to raise topics related to other aspects of transformational behavior on pro-environmental behavior. Analysis of the most citation using the theme can be seen in the table 1. Researchers, especially those who are just starting out, can get a head start on their research by using the iden-tification in the form of mapping in Figure 4. With the aid of this study, they can read articles about topics of interest when they come across them in a field of interest. For instance, if a researcher chooses cluster 1, the idea of environmental performance, green human resource management needs to be the beginning point for the starting idea of literature. Researcher can also use cluster 2 topics to conduct research related to employee pro-environmental behavior and OCB (organizational citizenship behav-ior) in hospitality sector or in different sector. Additionally, scholars can use the ref-erence manager to search for relevant literature using keywords from cluster 3, such as environmental impact, social responsibility and more. Moreover, the cluster can be used as idea to conduct the similar research or even cross-cluster research.

The topic of transformational leadership role to boost pro-environmental behavior is yet underdeveloped, especially in Asian countries like Indonesia. These discoveries have broad applications for both academics and practitioners. By identifying current study subjects in pro-environmental behavior, researchers can examine how much academic research addresses real-world issues. The study makes a number of prospective research recommendations that could help the researcher choose future research areas and highly cited sources to look at. The study can help journal editorial boards identify the topics with the most potential for future research growth. By identifying current study issues researchers can assess the extent to which academic research solves practical challenges. It is anticipated that academics will use this study as a springboard for fresh initiatives aimed at closing knowledge gaps and sparking new research projects.

## 4 Conclusion

A bibliometrics study aims to identify the most prevalent research trends in a certain field or journal. It's a useful method for gathering information about a particular research field for a predetermined time period and helps readers find important information from many sources. This study will examine the role of transformational leadership on pro-environmental behavior research that has been published in various publications using the Scopus database between 2013 and 2023. Future direction to be developed was the relationship of green transformational leaders, environmental performance, sustainable performance and environmental management.

## References

1. Akpan, U.F., Akpan, G.E.: The contribution of energy consumption to climate change: A Feasible policy Direction. Int. J. Energy Econ. Policy. 2, 21–33 (2012)
2. Novianti, K.R., Rumijati, A.: Indonesia green human resource management: A bibliometric analysis. In: Environmental Issues and Social Inclusion in a Sustainable Era. pp. 37–42. Routledge, London (2023)
3. Hu, H., Fang, W., Yu, X.: Enhancing individual commitment to energy conservation in organizational settings: Identity manipulation for behavioral changes. Resour. Conserv. Recycl. 156, 10–20 (2020). https://doi.org/10.1016/j.resconrec.2020.104720
4. Graves, L.M., Sarkis, J., Gold, N.: Employee proenvironmental behavior in Russia: The roles of top management commitment, managerial leadership, and employee motives. Resour. Conserv. Recycl. 140, 54–64 (2019). https://doi.org/10.1016/j.resconrec.2018.09.007
5. Graves, L.M., Sarkis, J., Zhu, Q.: How transformational leadership and employee motivation combine to predict employee proenvironmental behaviors in China. J. Environ. Psychol. 35, 81–91 (2013). https://doi.org/10.1016/j.jenvp.2013.05.002
6. Graves, L.M., Sarkis, J.: The role of employees' leadership perceptions, values, and motivation in employees' provenvironmental behaviors. J. Clean. Prod. 196, 576–587 (2018). https://doi.org/10.1016/j.jclepro.2018.06.013

7.  Ly, B.: Green HRM and eco-friendly behavior in Cambodian public organizations: The mediation of organizational commitment. Environ. Challenges. 10, 100674 (2023). https://doi.org/10.1016/j.envc.2022.100674

8.  Singh, S.K., Giudice, M. Del, Chierici, R., Graziano, D.: Green innovation and environmental performance: The role of green transformational leadership and green human resource management. Technol. Forecast. Soc. Change. 150, 119762 (2020). https://doi.org/10.1016/j.techfore.2019.119762

9.  Aitken, N.M., Pelletier, L.G., Baxter, D.E.: Doing the Difficult Stuff: Influence of Self-Determined Motivation Toward the Environment on Transportation Proenvironmental Behavior. Ecopsychology. 8, 153–162 (2016). https://doi.org/10.1089/eco.2015.0079

10. Handy, F., Katz-Gerro, T., Greenspan, I., Vered, Y.: Intergenerational disenchantment? Environmental behaviors and motivations across generations in South Korea. Geoforum. 121, 53–64 (2021). https://doi.org/10.1016/j.geoforum.2021.02.020

11. Sharpe, E.J., Perlaviciute, G., Steg, L.: Pro-environmental behaviour and support for environmental policy as expressions of pro-environmental motivation. J. Environ. Psychol. 76, 101650 (2021). https://doi.org/10.1016/j.jenvp.2021.101650

12. Aga, G., Francis, D.C., Rodriguez-Meza, J.: SMEs, Age, and Jobs: A Review of the Literature , Metrics , and Evidence. Policy Res. Work. Pap. 7493. 41 (2015)

13. Alsheikh, G., Sobihah, M.A.A.: Effect of behavioral variables on organizational citizenship behavior (OCB), with job satisfaction as moderating among Jordanian five-star hotels: A pilot study. Int. J. Ethics Syst. 35, 272–283 (2019). https://doi.org/10.1108/IJOES-01-2019-0001

14. Han, S.H., Yoon, D.Y., Suh, B., Li, B., Chae, C.: Organizational support on knowledge sharing: a moderated mediation model of job characteristics and organizational citizenship behavior. J. Knowl. Manag. 23, 687–704 (2019). https://doi.org/10.1108/JKM-03-2018-0213

15. Bass, B.M.: Leadership and Performance Beyond Expectations. The Free Press, New York (1985)

16. Farrukh, M., Raza, A., Ansari, N.Y., Bhutta, U.S.: A Bibliometric Reflection on The History of Green Human Resource Management Research. Manag. Res. Rev. 45, 781–800 (2021). https://doi.org/10.1108/MRR-09-2020-0585

17. Wu, K., Lang, M., Lim, M.K., Sf, A.: Causal sustainable resource management model using a hierarchical structure and linguistic preferences. J. Clean. Prod. 229, 640–651 (2019). https://doi.org/10.1016/j.jclepro.2019.04.394

18. Van Eck, N.J., Waltman, L.: Software survey : VOSviewer, a computer program for bibliometric mapping. Scientometrics. 84, 523–538 (2010). https://doi.org/10.1007/s11192-009-0146-3

19. Tranfield, D., Denyer, D., Smart, P.: Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review *. Br. J. Manag. 14, 207–222 (2003)