

A Bibliometric Review on Green Transformational Leadership

Nur Faithzah Jamian; Munirah Mohd Jidi*; Siti Norashikin Bashirun; Masliza Mohd Razali

Universiti Teknologi Mara, Kampus Alor Gajah, 78000 Alor Gajah, Melaka, Malaysia

Email: munirah187@uitm.edu.my

Amirudin Mohd Zani

Universiti Teknologi Mara, Kampus Dungun, 23000 Dungun, Terengganu, Malaysia

** Corresponding Author*

Abstract

Purpose: The goal of this study is to create a bibliometric review on green transformational leadership and to analyze the publishing sources, authors, citations, and other factors.

Design/methodology/approach: This evaluation applies bibliometric analytic methods and VOSviewer software to 139 articles discovered in the Scopus database between 2013 and 2023.

Findings: The analysis's findings have revealed the most active and significant co-authorship, publication trend, and citations in this field in recent memory. The progress about green transformational leadership is communicated through the elaboration and visualization of the origin mapping, where keyword analysis will take place.

Research limitations/implications: This review is limited to the Scopus database only and of 10 years without considering the literature's content, bibliometric research evaluates documents based on the volume of citations and publications. Additionally, the demand for more qualitative studies needs to be conducted in proving theories in green studies and knowledge.

Practical implications: This literature review can be used as a starting point for future research utilizing other key words about green transformational leadership and relationships.

Originality/value: Frequently used terminologies are listed and helped to develop a research agenda that highlights pertinent subjects, techniques, and industries.

Keywords: Green transformational leadership, sustainability, bibliometric analysis, systematic literature review

Introduction

Numerous issues with our ecology have become worse over the past few decades to the point where they could trigger a complete environmental catastrophe. Some of the biggest environmental problems are global warming, poor governance, food waste, biodiversity loss, plastic pollution, deforestation, air pollution, melting ice caps and sea level rise, ocean acidification, agriculture pollution, food and water insecurity, fast fashion, and textile waste, overfishing, cobalt mining and soil degradation. As a result, it is becoming increasingly vital to promote awareness of these challenges and the steps that may be done to mitigate their negative consequences. (Sun et al., 2022). Environmental issues are currently the most prominent topic to be addressed not only by developing economies countries but the whole world (Sharif et al., 2021).

Greening management and organizational philosophy has recently acquired favor among industry and academics in order to lessen the impact of industrial waste and dangers produced by organizations. Stakeholders and academics have put pressure on organizations to develop policies to achieve social, economic, and environmental goals. Since then, the focus of study in academic fields and companies is turning from a general discussion of green business to greening functional areas such as green innovation, green finance, green human resource management, and green creativity (Wang et al., 2021). Survival in the global business sector depends on the long-term business strategy and gain a competitive advantage. Many academics have claimed that businesses who pioneer green creativity and innovation will benefit from being the first to market in the field of green and resource-efficient production, which can boost their brand recognition and market share.

In realizing the green behavior among employees in organizations, green transformational leadership and green human resource management (GHRM) playing critical roles in the development of adaptive governance institutions. The leadership style shown by managers has a significant impact on the adoption of green management projects. Organizational managers continue to have a lot of concerns about encouraging employee innovation in green areas (Zhu et al., 2013). A vision from a transformational leader may inspire their followers to actively complete their own tasks and finally achieve organization's objectives. As supported by (Chen et al., 2014) where green self-efficacy, green performance, and green mindfulness are all highly impacted by green transformational leadership in firms.

The emergence of environmental concerns over the past 10 years has challenged manufacturing industries and global business players to adopt a green mindfulness towards the business identity. In practice, concerns for sustainability have implications for products, processes, services, and business models (Hermundsdottir & Aspelund, 2021). As a result, a multidisciplinary knowledge base for green transformational leadership has emerged. This knowledge base includes greening the functional areas of finance (Przychodzen et al., 2018), green human resources management (Yong et al., 2019), and green creativity (Awan et al., 2019).

Due to the development of green transformational leadership as an area of study and application, we have framed this bibliometric review. The goals of the review were to document and analyse trends in research on green transformational leadership (GTL) over the past 10 years. This bibliometric review addressed the following research questions.

Research Question 1: What is the volume of publication over the years?

Research Question 2: Which are the most productive countries?

Research Question 3: Which are the most productive journals?

Research Question 4: Which publications are the most cited in the research period?

Research Question 5: What topics in green transformational leadership research have received the greatest attention in the literature?

Our research adds a number of new ideas to the field. First, we identify publication requirements in a current year on concentrated area of research concerning green transformational leadership. Second, by analysing the information by years and countries as mentioned in RQ1 and RQ2 will assists to spot the most important events and concepts in the research on green transformational leadership. In this sense, by summarizing the main international regulations or recommendations on green transformational leadership, our study

offers a pathway for researchers to understand how research has responded to changes in legislation or professional guidance. Third, it is crucial to determine the top journals, authors, and their relationships (RQ3 and RQ4) because this data will help future studies on green transformational leadership position themselves. Fourth, we identify and classify the key topics and current trends in the research on green transformational leadership (RQ5), as well as the most pertinent publications in the area. Academics will be better able to understand previous and present research interests with knowledge of research trends, which is essential for determining the future orientations of research. As a result, our study offers a comprehensive picture of the field of research on green transformational leadership and makes a substantial contribution to the mapping of intellectual structure and research trends in this area.

We used organized search techniques to locate 139 Scopus-indexed papers on green transformational leadership. The writers analyzed the data that they extracted from these papers in order to be published between 2013 and the beginning of 2023 using bibliometric data analysis (Zupic and Cater, 2015). The size, growth trend, and geographic distribution of this literature can all be tracked by quantitative reviews. We use the VOSviewer program and the application of keyword co-occurrence analysis to map the most significant research subjects examined and possible research gap possibilities.

The rest of this research report is divided into the following sections. Next section indicates the literature reviews followed by the methodology in section 3. In section 4, details of the results will be analysed while discussion will be conducted in section 5. Finally, conclusion including the research contribution and limitation will be summarized in section 6.

Method

This section outlines the methodologies of data analysis as well as the procedures used to identify the studies for the review.

Identification of source

The data repository from which to look for and extract documents was decided to be the Scopus index. The current study is organized as a bibliometric analysis based on the Scopus database published within 10 years, from 2013 to 2023. For the associated articles, the keyword "green transformational leadership" was used as search criterion. The search filter for this study was set to return only papers with the terms "green transformational leadership" in the title, keywords, or abstract. Finally, 139 research publications were identified after narrowing down the field of study, publication year, document format, and language (English). The data was visualised, mapped, and analysed. The data interpretation was done on the basis of year-wise growth of publication, journal with the most prolific publication, utmost cited papers, most prolific authors, countries and institutions, collaboration of countries and maximum occurrences of keywords. The flow diagram of the search strategy is shown in Figure 1.

Data Analysis

The data analysed for this review consisted of bibliographic information describing features of the 139 Scopus-indexed document. In answering the research questions mentioned above, information such as included the author names, titles, publication date, and author affiliations of the documents, as well as copious citation information will be identified. In order to undertake trend analysis pertaining to the expansion and distribution of the green transformational leadership, descriptive statistics were used.

The VOSviewer program was used to undertake bibliometric analysis to combine patterns of knowledge generation in the green transformational leadership field. By using application of keyword co-occurrence analysis in this software, similarities among frequently co-occurring keywords in green transformational leadership literature can be visualized. Finally, scholars can identify subjects that have recently appeared in the literature.

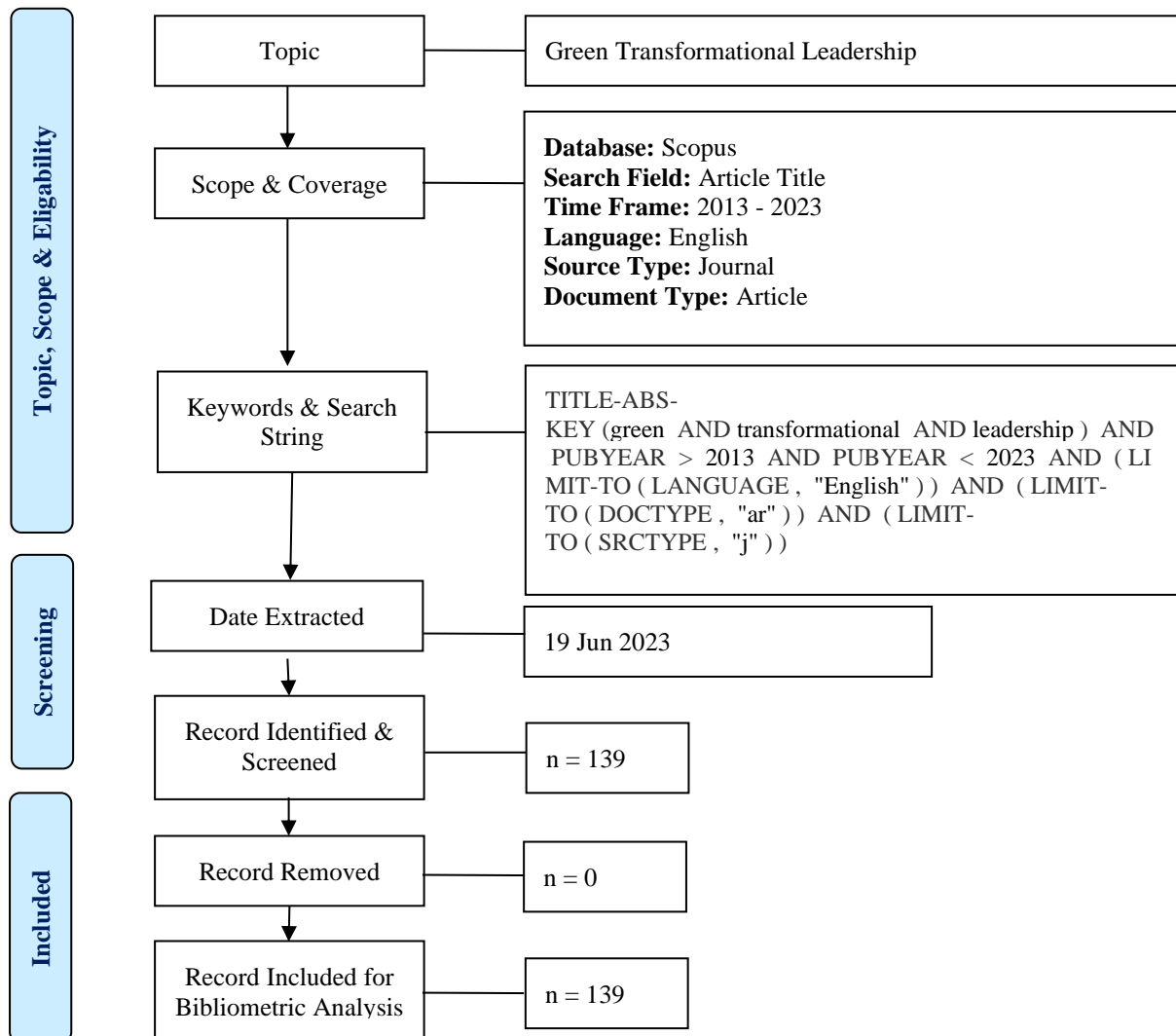


Figure 1. Flow diagram of the search strategy.

Findings

This section outlines the findings from the bibliometric evaluation of 139 GTL publications that were published between 2013 and 2023.

Publications by Year (RQ1: What is the volume of publication over the years?)

Figure 2 depicts the development of the field of green transformational leadership research from 2013 to 2023. The impact of various international rules on this research topic can be clearly seen at multiple stages. The findings show that green transformational leadership research activity has been increasing for the past 10 years.

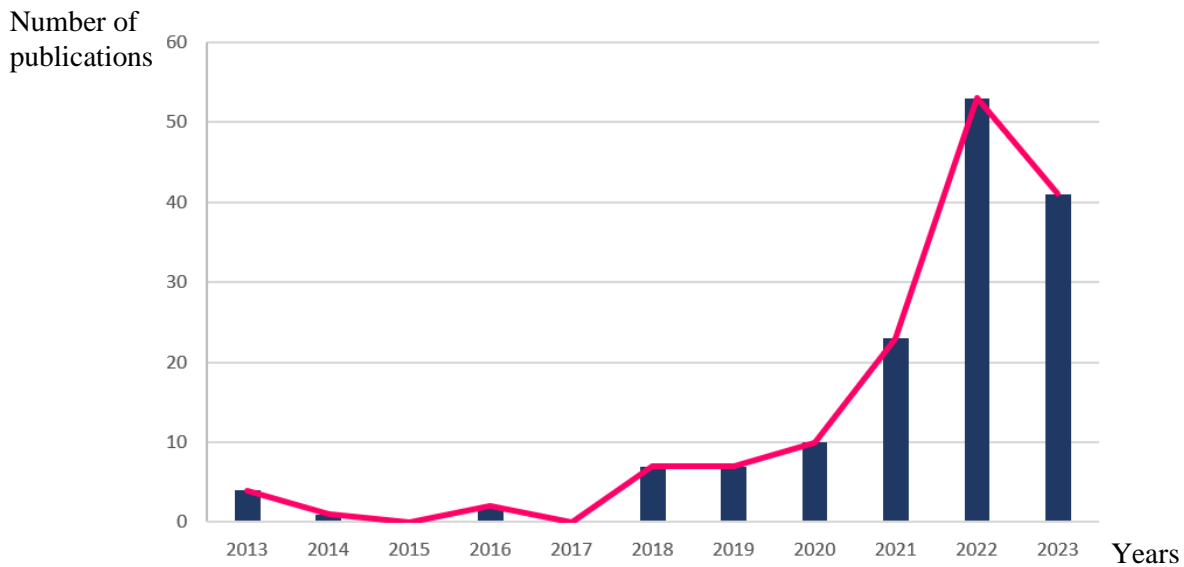


Figure 2. Total publication by year.

The first stage had a low and erratic number of publications between the years of 2013 and 2017. The trend and changes in government policies and regulations are probably what caused the earliest studies on green transformational leadership to emerge.

Second stage which in the period of 2018-2020, research on green transformational leadership rose drastically compared to previous years, but at stable number of publications. In 2020, there were 10 publications were published, compared to 2017 with 0 paper published.

However, in the third stage, research activity on green transformational leadership has been strengthened and getting higher starting year 2021 with 23 publications, and in following year 2022, there were 53 documents published. Indeed, 117 documents or 79% of total publications on green transformational leadership were published during year 2021-2023, which emphasizes the significance of green transformational leadership in current research, and other explanations may be discovered for these rising numbers.

Several scholars and researchers have written about the relationship between growing environmental awareness and green transformational leadership (Mittal & Dhar, 2016; Wang et al., 2018; Singh et al., 2020). These authors have explored how increasing awareness of environmental issues influences leadership styles and strategies aimed at sustainability. There is an increasing awareness of environmental issues and climate change across the globe. Many countries and regions are implementing stricter environmental regulations and policies. This has placed pressure on businesses to adopt more sustainable practices. Leadership is a critical factor in ensuring compliance and driving proactive environmental initiatives, making it a focus of research and study. As environmental concerns become more pressing, organizations and researchers are placing greater emphasis on leadership styles and strategies that can effectively address these challenges. Green transformational leadership aligns with the need for sustainable practices and environmental responsibility (Singh et al., 2020; Shafique & Mollaoglu 2020).

Besides, green innovation is increasingly viewed as a source of competitive advantage. Green transformational leadership can stimulate innovation, helping organizations develop environmentally friendly products, services, and processes that can set them apart in the market (Maitlo et al., 2022; Cui & Wang, 2022).

Publications by Country (RQ2: Which are the most productive countries?)

All the research papers in the current study belong to their respective authors from 50 different countries. Figure 3 highlight the top ten most prolific countries with the highest number of publications and citations on green transformational leadership. The highest publications were from China (n = 56), followed by Pakistan (n = 31) and Malaysia (n = 10). China has established a strong presence in this area and has the most published documents, which has increased its influence. The needs for conserving the environment in China due to the influence of government regulatory on the limited, uneven, and non-renewable distribution of resources (Jiang et al., 2022; Ren et al., 2021).

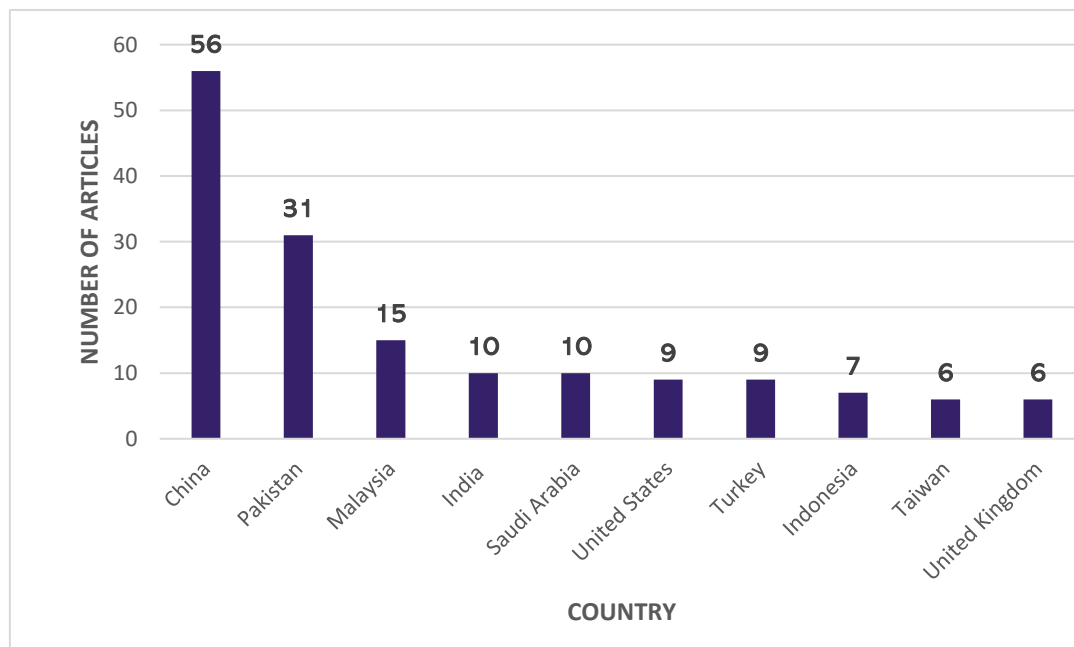


Figure 3. Total publication by country.

Publication by Journal (RQ3: Which are the most productive journals?)

In 89 journals, the 139 documents from our sample have been published. The number of publications for each journal are shown in Table 1. The top 5 most relevant journals publishing articles on green transformational leadership are Sustainability Switzerland, Frontiers In Psychology, Business Strategy And The Environment, Corporate Social Responsibility And Environmental Management and Environmental Science And Pollution Research (Table 1).

It is observed that the journal, “Sustainability Switzerland” has the highest number of publication (17) related to GTL followed by “Frontiers in Psychology” (9) documents. The third to fifth ranking journal, “Business Strategy and The Environment”, “Corporate Social Responsibility and Environmental Management” and “Environmental Science and Pollution Research” each with five documents.

Table 1. Top 5 Journal/Source Title

Journal/Source Title	Frequency
Sustainability Switzerland	17
Frontiers In Psychology	9
Business Strategy And The Environment	5
Corporate Social Responsibility And Environmental Management	5
Environmental Science And Pollution Research	5

Most Cited Papers with Title, Authors, and Year of Publication (RQ4: Which publications are the most cited in the research period?)

Analysis of citations indicates the impact of publications on the literature (Merigó and Yang, 2017). The importance of publications and the level of scientific intelligent of researchers and institutions have both been evaluated using citation analysis (Ellegaard and Wallin, 2015). However, in order to position their study and map the prior literature, scholars continue to need this analysis. The analysis is focused on demonstrating global citations, which confirms the influence on the papers looked at in this research. Table 2 shows the 20 most cited documents.

Table 2. Top 20 highly cited articles

Authors	Year	Affiliation	Title	TC
Singh S.K.; Giudice M.D.; Chierici R.; Graziano D.	2020	Abu Dhabi University, United Arab Emirates	Green innovation and environmental performance: The role of green transformational leadership and green human resource management	660
Robertson J.L.; Barling J.	2013	Queen's University, Canada	Greening organizations through leaders' influence on employees' pro-environmental behaviors	509
Chen Y.-S.; Chang C.-H.	2013	National Taipei University, Taiwan	The Determinants of Green Product Development Performance: Green Dynamic Capabilities, Green Transformational Leadership, and Green Creativity	422
Mittal S.; Dhar R.L.	2016	Indian Institute of Technology, India	Effect of green transformational leadership on green creativity: A study of tourist hotels	198
Li W.; Bhutto T.A.; Xuhui W.; Maitlo Q.; Zafar A.U.; Ahmed Bhutto N.	2020	Dongbei University of Finance and Economics, China	Unlocking employees' green creativity: The effects of green transformational leadership, green intrinsic, and extrinsic motivation	161
Jia J.; Liu H.; Chin T.; Hu D.	2018	Northeastern University, China	The continuous mediating effects of GHRM on employees' green passion via transformational leadership and green creativity	131
Chen Y.-S.; Chang C.-H.; Lin Y.-H.	2014	National Taipei University, Taiwan	Green transformational leadership and green performance: The mediation effects of green mindfulness and green self-efficacy	95

Çop S.; Olorunsola V.O.; Alola U.V.	2021	Istanbul Gelisim University, Turkey	Achieving environmental sustainability through green transformational leadership policy: Can green team resilience help?	82
Begum S.; Ashfaq M.; Xia E.; Awan U.	2022	Beijing Institute of Technology, China	Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement	78
Zhou S.; Zhang D.; Lyu C.; Zhang H.	2018	Northeastern University, China	Does seeing "mind acts upon mind" affect green psychological climate and green product development performance? The role of matching between green transformational leadership and individual green values	75
Wang X.; Zhou K.; Liu W.	2018	Jiangxi Agriculture University, China	Value congruence: A study of green transformational leadership and employee green behavior	63
Kura K.M.	2022	Xi'an Jiaotong University, China	Linking Environmentally Specific Transformational Leadership and Environmental Concern to Green Behaviour at Work	60
Farooq R.; Zhang Z.; Talwar S.; Dhir A.	2016	Federal Polytechnic, Nigeria	Do green human resource management and self-efficacy facilitate green creativity? A study of luxury hotels and resorts	58
Farrukh M.; Ansari N.; Raza A.; Wu Y.; Wang H.	2022	Shenzhen MSU-BIT, China	Fostering employee's pro-environmental behavior through green transformational leadership, green human resource management and environmental knowledge	56
Moin M.F.; Omar M.K.; Wei F.; Rasheed M.I.; Hameed Z.	2021	Tongji University, China	Green HRM and psychological safety: how transformational leadership drives follower's job satisfaction	48
Zhang W.; Xu F.; Wang X.	2020	Harbin Institute of Technology, China	How green transformational leadership affects green creativity: Creative process engagement as intermediary bond and green innovation strategy as boundary spanner	48
Mi L.; Gan X.; Xu T.; Long R.; Qiao L.; Zhu H.	2019	China University of Mining and Technology, China	A new perspective to promote organizational citizenship behaviour for the environment: The role of transformational leadership	43
Riva F.; Magrinos S.; Rubel M.R.B.	2021	Bangladesh University of Professionals, Bangladesh	Investigating the link between managers' green knowledge and leadership style, and their firms' environmental performance: The mediation role of green creativity	36
AlNuaimi B.K.; Singh S.K.; Harney B.	2021	Abu Dhabi University, United Arab Emirates	Unpacking the role of innovation capability: Exploring the impact of leadership style on green procurement via a natural resource-based perspective	36
Hameed Z.; Naeem R.M.; Hassan M.; Naeem	2022	Beijing Institute of Technology, China	How GHRM is related to green creativity? A moderated mediation model of green transformational leadership and green perceived organizational support	34

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This analysis presents an effective way to identify the most cited literature on relevant researchers of a topic, by considering total citations. In particular, the citations reflect the influence that authors have in a specific field of research (Merigó and Yang, 2017).

Specifically, there are 128 authors who have contributed to research on green transformational leadership. Table 2 shows the information of the 20 authors with the most citations, which becomes crucial for academics to recognize the most influential authors in this research area. At the same time, this table also shows their publication's year, as well as their affiliation. The highest cited paper with 660 citations is 'Green innovation and environmental performance: The role of green transformational leadership and green human resource management' (Singh et. Al., 2020). This research explores the relationship between green transformational leadership, green human resource management, and green innovation in small and medium-sized enterprises in the manufacturing sector. The scholar suggest that leaders and managers should institutionalize environmental management responsibilities in the performance appraisal and management system for employees to continuously display job behaviors that enhance environmental performance.

The second most cited document contributed by Robertson and Barling (2013) having 509 citations where the results demonstrate that leaders' pro-environmental activities and environmental descriptive norms play a significant effect in the greening of organizations. The third highly cited paper titled 'The Determinants of Green Product Development Performance: Green Dynamic Capabilities, Green Transformational Leadership, and Green Creativity' by Chen and Chang (2013). The paper with 422 citations showed its findings that green dynamic capabilities and green transformational leadership can both directly and indirectly improve the performance of green product development. The rest of the documents with the total cites can be referred on the Table 2.

Citation Analysis (RQ5: What topics in green transformational leadership research have received the greatest attention in the literature?)

The results of co-citation analysis were expanded using topical analysis. A co-word map was generated in VOSviewer using a threshold of 39 keyword co-occurrence (see Fig. 4). The themes in the literature were surfaced by synthesizing the keywords that made up each cluster. From the map, it reveals three clusters representing Green Transformational leadership, Environmental Policies and Green innovation.

Cluster 1 (red) represents a school of thought termed Green Transformational Leadership. It describes a leadership approach that places a strong emphasis on advancing environmental sustainability and green initiatives within a company (Bass & Stogdill, 1990). Effectively communicating a green-related vision, creating a clear structure and system to encourage the development of a mental attitude toward ecological challenges, and giving the internal customers enough feedback on these topics are all characteristics of green transformational leaders (Chen & Yan, 2022). Scholars in this school have been concerned with defining the field (Niazi et. al., 2023; Chen & Yan, 2022) and elaborating management practices that contribute to green transformational leadership (Singh et. al., 2020; Chen & Chang, 2013). They have also made practical contributions by identifying and testing new ways of measuring

the determinants of green transformational leadership in environmental performance (Soni, 2022).

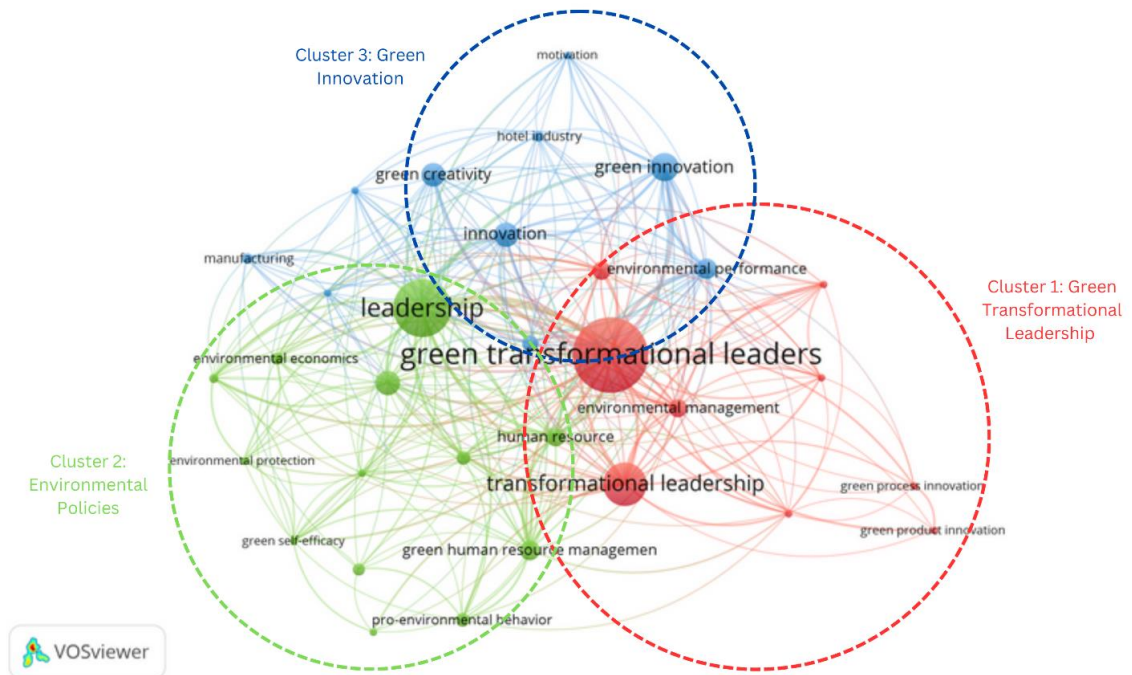


Figure 4. The main clusters of Green Transformational Leadership documents based on keyword cooccurrence (keyword threshold – 39; display 16 keywords)

The second cluster (green) is associated with Environmental Policies. The development of green policies requires involvement of green transformational leadership. Many has shown that green transformational leadership positively relate to pro-environmental behaviour. Some even emphasize on how pro-environmental behaviour plays a dynamic role in influencing the link and provide a strong message to leaders about the importance of giving pro-environmental behaviour top priority when choosing and hiring new personnel (Sobaih et. al., 2022). More study results demonstrate the beneficial effects of green knowledge, green transformational leadership, and green creativity on environmental performance (Riva et. al., 2021; Perez et. al, 2023).

The third cluster (blue) in Figure 4 represents the studies on green innovations in ensuring environmental issues being address in organizations. Few studies have been conducted in manufacturing and hotel industries (Farooq et. al., 2022; Hussain et. al., 2022) where green transformational leadership significantly related to green creativity and innovation. Saif et. al., (2023) conducted a study among university students has identified that green transformational leadership enhance students’ motivation to promote the green creativity through innovative product or service model innovation.

The final analysis applied a temporal overlay to the co-word map shown in Fig. 5. The temporal overly links keywords to the date of publication of their documents. Temporal co-word analysis illustrates the time frame during which certain themes were most popular (Zupic & Čater, 2015). Thus, we can track the development of the literature on green transformational

leadership over the past ten years by analysing the subjects by colour or shade. Topics that were popular earlier in this literature are represented by darker nodes, while those from more recent literature are represented by lighter nodes.

According to the temporal co-word map, environmental performance and green innovation are the main topics of current writing. Other hot topics surfaced by the temporal co-word map are green human resource management and pro-environmental behaviour. Few current literatures

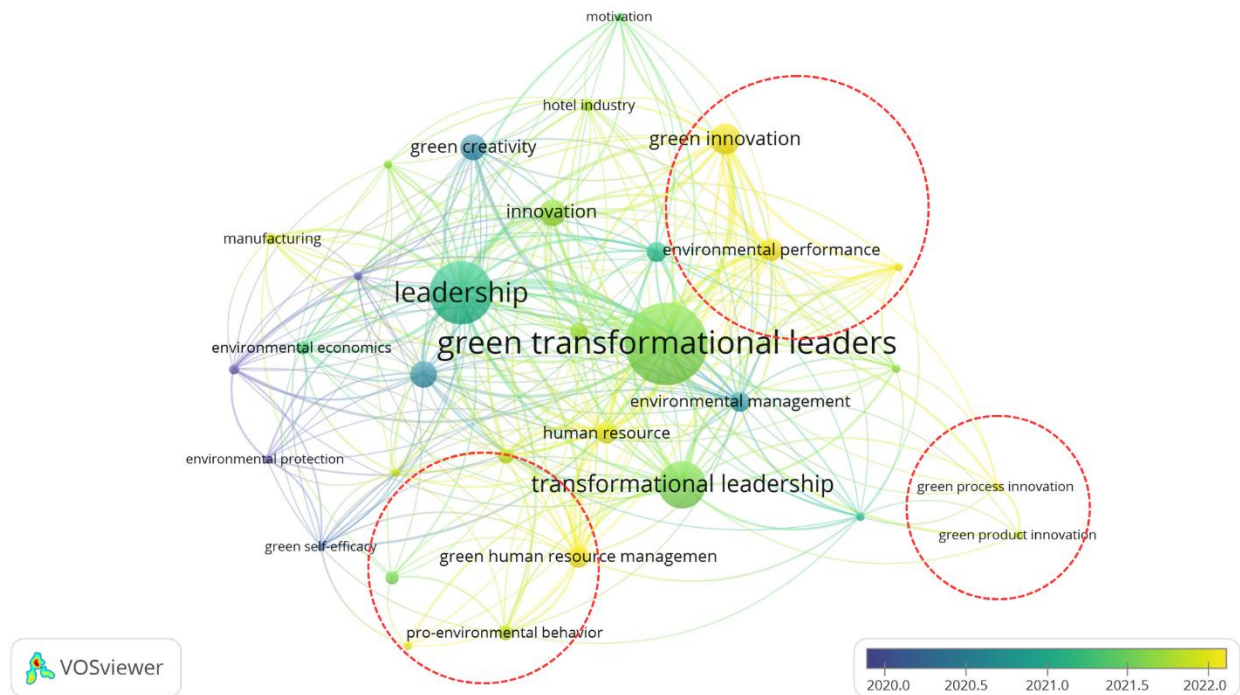


Figure 5. Temporal overlay on keyword co-occurrence map (keyword threshold – 39; display 16 keywords)

focusing on green process innovation and green product development. The keyword ‘environmental management’ (Chen et. al., 2014; Kura, 2016) was linked to ‘green process innovation’ (Iqbal et. al., 2021; Zhu et. al., 2022; Awan et. al., 2023; Pham & Pham, 2023) and ‘green product innovation’ (Zhou & Huang, 2022; Chen et. al., 2023; Tian et. al., 2023). Thus, green innovations mainly in work process and product making should be explored in the future. The innovation not only focused on the preservation of the environment but at the same time, cost efficient to the organization. The external pressure on the environmental issues has increased the adoption of green human resource management. Scholars identified that green transformational leadership has a significant relationship on employee pro-environmental behaviour (Cahyadi et. al., 2022; Soni, 2022). Green concepts in leadership and human resource management practices can be promoted by solving the green behavioural problem of the employees.

Discussion and Conclusion

Employing bibliometric analysis, this research review documented the emergence of literature on green transformational leadership over the past 10 years. In addition, the review surfaced important themes that are defining the meaning and range of green transformational leadership.

This bibliometric review identified a substantial knowledge base on green transformational leadership consisting of 139 Scopus-indexed documents published between 2013 and 2023. Our results documented a relatively modest pattern of growth from 2013 to 2017, followed by increasing research published from 2018 until 2023. Total of 90% of the documents in our database were published since 2018. Many employees, particularly younger generations, are seeking purposeful work and are drawn to companies that demonstrate a commitment to environmental sustainability. Green transformational leadership can inspire and engage employees by aligning their work with a greater environmental mission, leading to increased job satisfaction, productivity, and talent retention. As regulatory pressures in combating the environmental issues increasing, the governments and regulatory bodies around the world are implementing stricter environmental regulations and standards. Green transformational leadership helps organizations stay compliant with these regulations, while also positioning them as leaders in their industries by proactively adopting sustainable practices. This affirms the conclusion that this is a dynamic, rapidly changing knowledge base capable of yielding important findings over relatively period.

Interest in green transformational leadership is a world phenomenon, with significant researches emerging throughout the globe. Obviously, the developing countries face more environmental issues due to many factors such as poor legislations on waste management, limited capabilities in adopting high technologies in dealing with production leads to many scholars conducted their studies in China, Pakistan and Malaysia. China's sizeable population, growing middle class, and expanding consumer market make it an influential player in global business. As sustainable consumption and environmental consciousness increase worldwide, understanding green transformational leadership in the context of the Chinese market becomes crucial for businesses operating both domestically and internationally.

With the ability to visualize the conceptual structure, we found that three clusters in green transformational leadership: *Green Transformational Leadership*, *Environmental Policies and Green Innovation*. Identification of these clusters in green transformational leadership knowledge base reaffirm the expansion of research and direction. Consistent with recent reviews (Mohapatra et. al., 2023), our co-word analyses found that green transformational leadership positively related to green innovation. Green transformational leaders encourage creativity and innovation in finding sustainable solutions. This approach stimulates research and development efforts, leading to the discovery of new technologies, practices, and business models that can help organizations adapt to a rapidly changing environmental landscape. Implementing green practices can provide a competitive edge in the marketplace. Consumers are increasingly conscious of environmental issues and are more likely to support businesses that prioritize sustainability. Green transformational leadership enables organizations to differentiate themselves by integrating sustainable strategies, attracting environmentally conscious customers, and creating a positive brand image. In gaining the public trust, many organizations are becoming aware of their impact on the environment and the importance of sustainable practices. Employees need to be nurture and possess green mindfulness through environmental policies. Thus, adopting green human resource management with the role of green transformational leadership can promote green business identity.

In conclusion, this review has shown how the international literatures on green transformational leadership has been emerging and rapidly expanding. Our bibliometric analysis targets a few specific research problems, and interesting data has been discovered that has immediate academic consequences.

First off, despite fluctuating growth, research activity has increased over the past few years. This review's growth pattern indicates that it will more than double in size during the following ten years. Second, research on green transformational leadership has been primarily developed in the China and Asian countries. The evidence offers enticing chances for academics to do more research in this area. Third, researchers can better focus their study by looking at the analysis of publication activity by journal. In this regard, even though the primary journals that contain publications on this topic are in the Business and Management category, our paper suggests that the future research trends may also consider green innovation and green creativity, and this may enable positioning research on green transformational leadership in journals with a broader scope, increasing the multidisciplinary nature of this stream of research. Fourth, the citation analysis proves vital to an understanding of the most notable and influential publications in this research field, which is necessary for scholars to understand research gaps and position their efforts. Sixth, the content analysis shows the most frequent themes in the literature regarding green transformational leadership. The consideration of fluctuate grown on this area allows identifying the progressive transaction toward topics more related to environmental performance and pro-environmental behavior.

In addition to providing a list of the top cited articles based on Scopus-index, this study also provides a quantitative overview of the prolific journals, authors, countries, and institutions. The leaders' role in encouraging employees' awareness of the environment is well recognized and can be expanded to further the goals of green businesses.

Even so, this review is also subject to some limitations. First, it is limited to the Scopus database only and of 10 years. Second, without considering the literature's content, bibliometric research evaluates documents based on the volume of citations and publications. Third, our search criteria are based on our title, and other keywords could emerge in the future. Finally, the demand for more qualitative studies needs to be conducted in proving theories in green studies and knowledge.

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