



Drawing a Scientific Map of the Field of Ambidextrous Leadership with a Bibliometric Approach

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Purpose: Ambivalence includes the ability to perform exploitative activities (attention to the present time) and exploratory activities (attention to the future time) at the same time. Therefore, the current research was conducted with the aim of drawing a scientific map of the field of ambidextrous leadership with a bibliometric approach.

Methodology: This research in terms of purpose was applied and in terms of execution method was descriptive. The population of this study was conducted researches in the field of ambidextrous leadership in the Scopus database from 2007 to 2023 with a systematic method. For data analysis was used from bibliometric method with the two objectives of functional analysis and citation network analysis and with PRISMA protocol in VOSVIEWR software.

Findings: The results of functional analysis showed that in the field of ambidextrous leadership, Rosing et al had the most citations (583 items) with an article entitled Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. Also, the countries of China, Australia, Germany, England and America respectively had the most research in the field of ambidextrous leadership. In addition, the findings of the citation network analysis showed that there were three clusters for authors and six clusters for countries in the co-citation pattern. Also, the synonymy pattern had 1309 links, 337 keywords and 48 clusters, which most of them were with the keywords of innovation, creativity and leadership.

Conclusion: The findings of this study about the ambidextrous leadership with a bibliometric approach indicate that the results of this study can help to understand the different angles of ambidextrous leadership with the aim of increasing and promoting it.

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1. Introduction

Ambidexterity refers to the ability to perform exploitation activities (focused on the present and characterized by gradual innovation) and exploration activities (focused on the future and characterized by radical innovation) simultaneously, indicating the capability of organizations to balance exploitation and exploration activities, which can lead to incremental and gradual improvements within the organization (Simeoni et al., 2020). One of the most significant challenges organizations face in dynamic and complex environments is balancing exploitation and exploration activities, which can lead to incremental and gradual improvements within the organization (Di Muro, Lecoivre, and Turner, 2021). Ambidexterity refers to the simultaneous pursuit of exploitation and exploration through the cohesion of learning efforts and learning outcomes. Exploitation refers to activities aimed at improving, optimizing, selecting, and executing an activity within an organization, while exploration refers to activities related to research, change, experimentation, and discovery (Kraus et al., 2022). Organizational ambidexterity refers to an organization's ability to adapt and align itself with changing, evolving, and complex environmental conditions while concurrently being in harmony with current and future activities (Felicio, Caldeirinha, and Dutra, 2019). Ambidextrous organizations are effectively managing today's business and meeting tomorrow's demands, and are capable of managing today's business effectively while adapting to an environment that is constantly changing and evolving (Randhawa, Wilden, and Gudergan, 2021). Ambidextrous organizations can exploit existing competencies for incremental innovation and explore new opportunities for nurturing radical innovation. Exploitative innovation includes activities to select improvements and efficiency, while exploratory innovation involves research, discovery, and experimentation (Omran et al., 2022).

The term ambidextrous leadership emerged in the third stage of the concept development and expansion of ambidexterity. To achieve ambidextrous organizations, it is necessary to have ambidextrous leaders. In other words, ambidextrous organizations require leaders with ambidexterity traits who can manage changes and innovations, foster creativity and innovation, and align and explore the organization to achieve their specific goals. Ambidextrous leadership can be the best way to inspire, lead, and innovate. This structure can simultaneously employ the exploratory and exploitative activities required for the innovation process. Today, the role of organizational managers as leaders is so important that private and government organizations seek managers with high organizational leadership power who can play an important role in integrating various organizational activities, creating coordination and communication between different units, and controlling organizational deviations. The concept development and expansion of ambidexterity involved three stages. The first stage, from 1995 to 2005, focused on theoretical literature to expand this concept. The second stage, from 2005 to 2009, involved examining the organization's results and consequences of ambidexterity. The third stage, after 2009, focused on consolidating and strengthening the ambidexterity concept. Ambidextrous leadership is based on the logic that displaying different leadership styles is insufficient. However, flexible modification and adjustment of leadership behaviors based on changing job requirements over time and integrating these behaviors to create coherence and compatibility in the overall approach to organizational leadership are essential.

There are two categories of behaviors in ambidextrous leadership: open behaviors that support exploratory activities and closed behaviors that support exploitative activities. Ambidextrous leadership involves cultivating both types of behaviors in followers by increasing or reducing their adaptability or malleability in their behaviors and flexibility in transitioning between the two types of behaviors. If organizational leaders can exhibit open and closed behaviors at the appropriate times, employee innovation performance also increases. Open leadership behaviors are defined as behaviors that increase variance in follower behaviors by encouraging them to pursue different tasks to gain new experiences and support their efforts to challenge the status quo. Ambidextrous leadership argues that open leadership behaviors lead to exploratory follower activities, while closed leadership behaviors are defined as behaviors that reduce variance in follower behaviors through guiding and directing action to achieve set goals. Ambidextrous leaders encourage open leadership behaviors to encourage employees to actively seek new ideas and solutions and then use closed

leadership behaviors to encourage employees to execute them. Ambidextrous leadership can promote innovation and risk-taking among employees. In general, according to the ambidexterity leadership theory, leaders must focus on open and closed leadership behaviors to increase or decrease employee behaviors and act flexibly. According to the theory, leaders must demonstrate flexible leadership behaviors to assess the environment, balance open and closed leadership behaviors, and display themselves to change innovation conditions. Therefore, ambidextrous leadership consists of three elements: open leadership behaviors, closed leadership behaviors, and the ability to transition between them flexibly. Open leadership behaviors refer to actions that promote employee adaptability in the pursuit of exploration, including encouraging independent thinking, seeking alternative methods, and supporting the challenge of the current situation. Closed leadership behaviors refer to actions that reduce employee behavioral diversity and stimulate employees to use existing knowledge. Therefore, ambidextrous leadership must simultaneously use these two conflicting yet complementary styles. It is important to note that open and closed behaviors alone are not enough, and to be more effective, open and closed behaviors should be performed in a balanced manner.

Ambidextrous leadership is one of the most fundamental secrets to the success of future organizations, especially in the arena of international competition, which has received little attention in Iran, and very few studies have been conducted in this regard. In leadership theories, the leader's behaviors are considered as one of the most important predictors of employees' creativity and innovation, and one of the behaviors that leaders exhibit in order to advance organizational goals and guide their followers is ambidexterity, which can manifest at the individual and organizational levels and lead to the realization of exploitative and exploratory activities. Research has been conducted on ambidextrous leadership, and in this current study, an attempt is made to review these studies using a bibliometric approach. Therefore, ambidexterity involves simultaneously performing exploitative activities (paying attention to the present) and exploratory activities (paying attention to the future). Therefore, this study aimed to map the scientific position of ambidextrous leadership using a bibliometric approach.

2. Methodology

This research was a practical study in terms of its objective and a descriptive study regarding its implementation. The population of this systematic study consisted of research conducted in the ambidextrous leadership field from 2007 to 2023, which was searched through the Scopus database. The criteria for selecting the research were observable in the selected papers in the area of ambidextrous leadership. Through the search, 1129 documents were found by searching in titles, keywords, and abstracts, of which 256 duplicate documents were removed and 873 documents remained. Then, documents were reviewed based on the author's name and abstract, and in this stage, 75 documents were removed, and 798 documents remained. In the next stage, English documents were preserved, the rest were deleted, and 438 documents remained. Finally, some documents that were either irrelevant to the period under study or did not have suitable content were removed, and ultimately, 122 documents were selected for final analysis.

Table 1. Selection criteria of selected articles in the field of ambidextrous leadership

Criteria	Description
Citation database	Scopus citation database
Keywords and search prompts	TITLE-ABS-KEY ("ambidexterity leadership" Or "ambidextrous leadership" Or "exploration and exploitation leadership") And (LIMIT-TO (DOCTYPE,"ar")) And (LIMIT-TO (SRCTYPE, "j"))
Citation type	Journal articles and literature review
Search time frame	2007 to 2023
Language	All languages (English citation sections)

Due to the breadth and diversity of studies on ambidextrous leadership and the need for a bibliometric study to identify the knowledge gaps in the field, the results of the breadth and diversity of ambidextrous leadership studies and their percentages are observable (Figure 1).

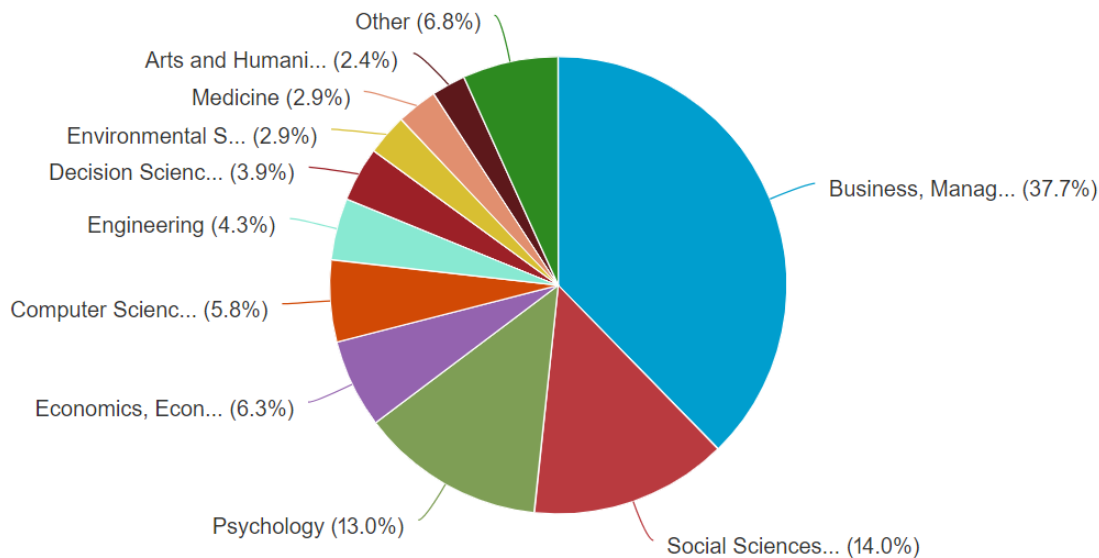


Figure 1. The results of the breadth and diversity of ambidexterity leadership research and their percentage based on the Scopus database

The data were analyzed using bibliometric methods, which included performance analysis and co-citation network analysis using the PRISMA protocol in VOSVIEWR software. The goal of performance analysis was to identify the most influential authors, countries, and papers in the field of ambidextrous leadership, while the co-citation network analysis aimed to identify the most effective co-citation patterns and keyword co-occurrence patterns.

3. Findings

The performance analysis results showed that in the field of ambidextrous leadership, the paper "Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership" by Rosing et al. had the highest citation count (583) (Table 2).

Table 2. The authors, titles, year of publication and the name of the most cited journal in the field of ambidextrous leadership based on the Scopus database

Citation count	Journal name	Year of Publication	Title	Authors
583	Leadership Quarterly	2011	Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership	Rosing K, Frese M, Bausch A
169	Leadership and Organization Development Journal	2015	Ambidextrous leadership and team innovation	Zacher H, Rosing K
145	Academy of Management Review	2014	Teams in pursuit of radical innovation: A goal orientation perspective	Alexander L, Van Knippenberg D

139	Harvard Business Review	2007	Ways to build collaborative teams	Gratton L, Erickson TJ
95	Journal of creative behavior	2016	Ambidextrous Leadership and Employees' Self-Reported Innovative Performance: The Role of Exploration and Exploitation Behaviors	Zacher H, Robinson AJ, Rosing K
72	Journal of Occupational and Organizational Psychology	2014	A daily diary study on ambidextrous leadership and self-reported employee innovation	Zacher H, Wilden RG
49	Public Management Review	2017	Reform in public organizations: the roles of ambidextrous leadership and moderating mechanisms	Trong Tuan L
48	Journal of Innovation and Entrepreneurship	2018	Ambidextrous leadership, ambidextrous employee, and the interaction between ambidextrous leadership and employee innovative performance	Alghamdi F
48	International Journal of Human Resource Management	2018	Ambidextrous leadership and TMT-member ambidextrous behavior: the role of TMT behavioral integration and TMT risk propensity	Luo B, Zheng S, Ji H, Liang L
47	Journal of Workplace Learning	2010	Effects of leadership style on team learning	Bucic T, Robinson L, Ramburuth P

The results also showed that China, Australia, Germany, the UK, and the US had the highest number of research papers in the field of ambidextrous leadership (Figure 2).

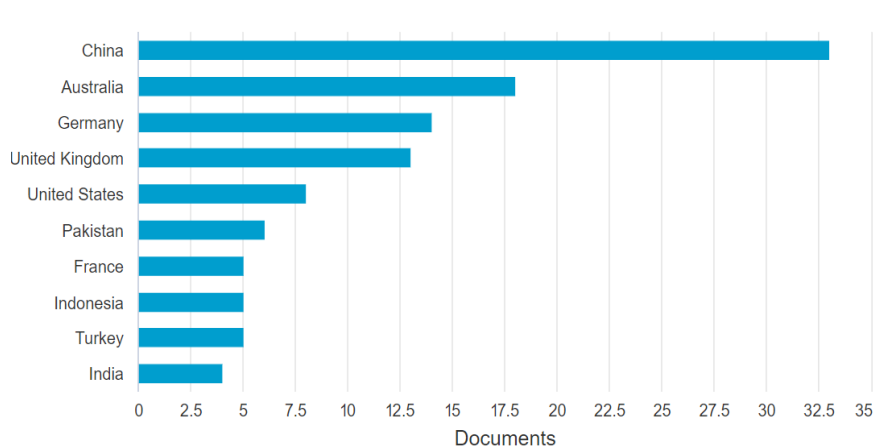


Figure 2. Countries with the most articles in the field of ambidextrous leadership based on the Scopus database

Furthermore, co-citation network analysis revealed the presence of three clusters for authors and six clusters for countries in the co-citation pattern (Figures 3 and 4).



Figure 3. Results of the co-citation pattern for authors in the field of ambidextrous leadership based on the Scopus database

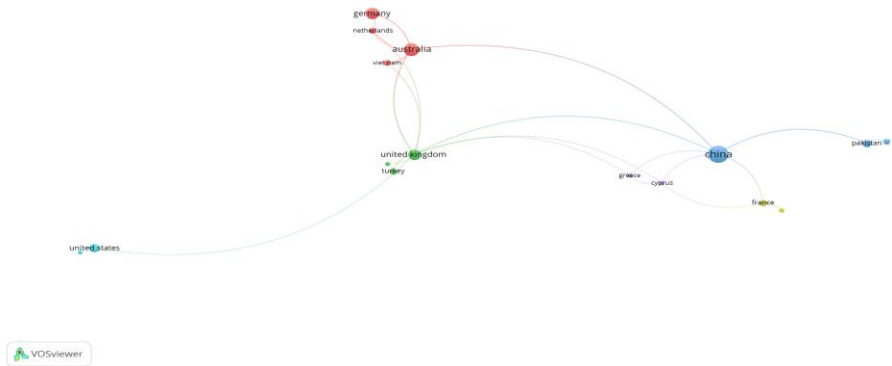


Figure 4. Results of the co-citation pattern for countries in the field of ambidextrous leadership based on the Scopus database

Additionally, the keyword co-occurrence pattern had 1309 links, 337 keywords and 48 clusters, most of which were related to keywords such as innovation, creativity, and leadership (Figure 5).

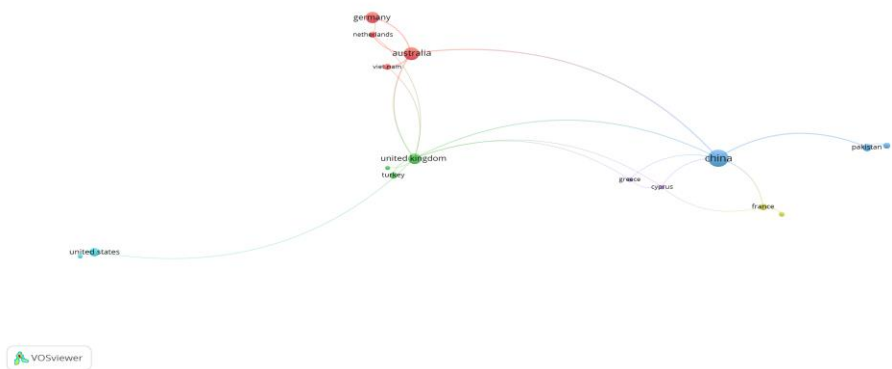


Figure 4. Results of the synonymy pattern in the field of ambidextrous leadership based on the Scopus database

4. Conclusion

This research aimed to map the ambidextrous leadership field using bibliometric analysis, with a focus on performance analysis and co-citation network analysis. The performance analysis aimed to identify the most influential authors, countries, and papers in the field of ambidextrous leadership, while the co-citation analysis aimed to identify the most effective co-citation patterns and keyword co-occurrence patterns in the field of ambidextrous leadership. The findings of the performance analysis showed that the paper, "Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership" by Rosing et al had the highest citation count in the field. Moreover, the countries China, Australia, Germany, the UK, and the US had the highest number of research papers in the field of ambidextrous leadership. Additionally, the co-citation network analysis revealed the presence of three clusters for authors and six clusters for countries in the co-citation pattern, and the keyword co-occurrence pattern was related to keywords such as innovation, creativity, and leadership.

Ambidexterity, colloquially meaning the ability to write with both hands simultaneously, refers in management and entrepreneurship literature to the ability to simultaneously explore and exploit opportunities. Businesses need to balance their explorative and exploitative activities to succeed in the short and long term. In fact, organizations that balance these two types of activities are more successful than others. The term ambidexterity is used for organizational levels, and ambidextrous organizations have an advantage in utilizing existing competencies for gradual innovation and discovering new opportunities to foster radical innovation. Exploitative innovation includes activities aimed at selecting and improving performance, while explorative innovation involves research, discovery, and experimentation.

The present study, like many studies, faced limitations during the research process. For example, in this study, only one scientific citation database, Scopus, was used to collect data. Other databases, such as Web of Science and Google Scholar, exist in this area, and despite significant overlap of data, some research and extracting information from them may differ. In addition, using the PRISMA protocol has its limitations, which prevent many studies from being included in the analysis. Therefore, it is recommended that future researchers use other systematic review methods such as meta-analysis and meta-synthesis and include other citation databases in their analysis. The findings of this study on ambidextrous leadership with a bibliometric approach suggest that the results of this study can help in understanding the different aspects of ambidextrous leadership to increase and enhance it.

Ethical Standards

In this research, all ethical considerations, including honesty in reporting results, were adhered to.

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Authors' Contributions

In this study, all authors had an equal contribution.

Conflict of interest

There was no conflict of interest in this study.

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