

The Role of Workplace Environment in Shaping Workers' Innovative Behavior: Insights From Bibliometric Analysis

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ABSTRACT

This study aims to analyze the role of the workplace environment in shaping innovative worker behavior. The method used in this research is a mixed method with a Literature Study (SLR) approach. The quantitative method in this research focuses on numerical or statistical data (e.g., number of publications, citation frequency, publication trends, and methodology trends). The qualitative method analyses the content of existing articles or literature (e.g., concepts, themes, and contexts underlying existing research). It identifies trends that may not be visible from mere numerical data. The data sources in this study were taken from the Scopus database and Google Scolar, which included the keywords "Workplace Environment" and "Innovative Behaviour". The study analyzed 79 articles published in reputable international journals from 2015-2023. The research found four main streams in the workplace environment and innovative behavior research: (1) a focus on individuals as agents of innovation, which dominated the 2015-2018 period; (2) an emphasis on the relationship between individuals and organizations that emerged in 2019-2020, where human resource management plays an essential role in supporting innovation; (3) attention shifted to organizations, focusing on collective innovation processes in 2021-2022; and (4); the most recent research (2023) again highlighted individuals as key catalysts of innovation, underlining the importance of the role of individuals in fostering creativity in the work environment.

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Introduction

In the era of globalization and intensifying business competition, organizations worldwide face the challenge of adapting and innovating rapidly [1], [2]. A supportive workplace environment has been identified as a key factor in encouraging employees' innovative behavior [3]. In this context, understanding how aspects of the work environment, including managerial support, innovation climate, and workplace spirituality, contribute to individual engagement and creativity is becoming increasingly important [4], [5], [6], [7]. Through a comprehensive bibliometric analysis, this review aims to identify and review the existing literature on the relationship between work environment and innovative behavior and provide insights that can assist organizations in creating a more creative work culture.

Innovative behavior pushes past existing boundaries and habits, creates new concepts, and makes them a reality through experimentation [8]. In this process, employees can access a wide range of information to generate creative and new ideas, which facilitates a more detailed understanding of existing problems and alternative solutions through experimentation (Dammak & Gardoni, 2018; Ng et al., 2022; Reiter-Palmon & Illies, 2004). Creative and innovative work behavior has been recognized as a complex and changing event that includes creativity elements [12]. These actions consist of four interconnected characteristics: problem identification, idea development, advocacy, and reward. One way to make organizations more innovative is to stop relying on research and development divisions alone for innovation and instead tap into all employees' innovative capabilities [12], [13]. Innovative behavior in the workplace means the desire to design, generate, and implement new ideas that can improve the performance of individuals, teams, and the whole organization [14], [15], [16]. Eight characteristics reflect innovative Behaviour: seeking opportunities, generating ideas, seeking inspiration, conveying ideas, developing ideas, gathering thoughts, taking steps, and facing obstacles [17]. Innovation can be seen as an asset that gives an organization a continuous competitive advantage in tangible aspects, such as goods,



methods, and services, and invisible elements, such as leadership style and organizational culture.

Therefore, organizations must recognize the need for innovation to deal with rapidly changing markets actively and customer demands to gain a sustainable competitive advantage and survive in such a challenging business environment [18]. Innovative Behaviour of an individual is defined as the acceptance, implementation, or utilization of new ideas by staff to solve problems in the work environment. Experts have identified individual innovative Behaviour as a key factor for public organizations seeking to maintain organizational success, effectiveness, and competitive advantage [19]. Individual innovative Behaviour is employees' adoption, implementation, or use of new ideas to solve workplace problems [20]. Innovation can be considered a source of sustainable competitiveness for organizations in tangible areas, such as products, processes, and services, and intangible regions, such as leadership and organizational culture. As such, organizations must recognize the need for innovation to proactively address rapidly changing markets and customer demands, secure a sustainable competitive advantage, and survive in such challenging business environments [18]. There are two phases in the work innovation process: forming ideas and implementing ideas [17].

The implementation of new ideas includes the application of new processes in daily work activities. Innovative Work Behaviour is a set of activities that positively contribute to an organization, rapidly changing the competitive environment. Innovative Work Behaviour supports the creation of competitive advantages for organizations and strengthens their sustainability. Today, innovative work behavior is the most effective factor in maintaining the pace of competition. Innovative work behavior can help improve employee well-being, resulting from a continuous social exchange process. Pursuing sustainability goals in the workplace can also positively affect workers. As environmental issues are valuable to many individuals, incorporating environmental sustainability into work can favor how employees feel and view their work [21]. This difference in the workplace learning environment has



also led to greater interest among businesses, policymakers, and researchers in what workplace learning means and how to support it with the right conditions [22].

Therefore, the purpose of this research is to address the debate that has been studied on the role of the workplace environment in shaping innovative worker behavior. The research will ask four main questions:

- RQ.1. How are Workplace Environment and Innovative Behaviour articles grouped? What research streams emerge?
- RQ.2. Which research stream gets the most attention?
- RQ.3. What is the most influential article in Workplace Environment and Innovative Behaviour research?
- RQ.4. What are the future research directions and research areas in the study of Workplace Environment and Innovative Behavior?

Method

This research utilizes both qualitative and qualitative methods from literature. Qualitative methods were used to analyze the content of existing articles or literature (e.g., concepts, themes, and contexts underlying existing research) and identify reasons or trends that may not be apparent from mere numerical data. We analyzed the literature using this method by reading all published articles from the Scopus Database and Geogle Scolar. This analysis aimed to show patterns and categorization of each published article. In this context, pattern can be interpreted as a general tendency in the use of keywords or themes employed in the reviewed studies. Meanwhile, categorization refers to the grouping of articles based on similar characteristics or approaches related to "Work Environment" and "Innovative Behavior." Articles and research topics by analyzing how often an article uses the exact keywords and key assumptions used in other articles. The article is the basic unit of analysis. The basic assumption in the bibliometric analysis is that articles published in scientific journals build research based on similar articles already published. Meta-analysis can help uncover underlying commonalities among studies of the role of the workplace environment in shaping innovative worker behavior. The chosen bibliometric tool, R Studio, is a powerful



quantitative method that improves upon conventional literature reviews. R Studio provides information on essential articles, authors, institutions, countries, and journal publishers, resulting in a more profound and more reliable research flow map of the role of the workplace environment in shaping innovative worker behavior than previous studies.

We used two keywords "Workplace Environment" AND "Innovative Behaviour". Firstly, we selected articles based on the same keywords. For search limitation, we only selected articles written in English, publications by years (2013-2023), document Types, Languages, and Research Areas. Furthermore, the author verified the data by reducing irrelevant data to the reviewed research topic to avoid bias in the literature reviewed. The resulting database of 79 articles was carefully read and analyzed for content (Fig 1). ol. Next, we reviewed the titles and abstracts of the articles for relevance to the research. The full article was scrutinized if the abstract did not provide enough information for determination. Articles were excluded from the analysis if they lacked important bibliometric details such as abstracts or keywords. As a result, some articles were excluded because they did not directly relate to the research topic. The following is the data collection process in this study.

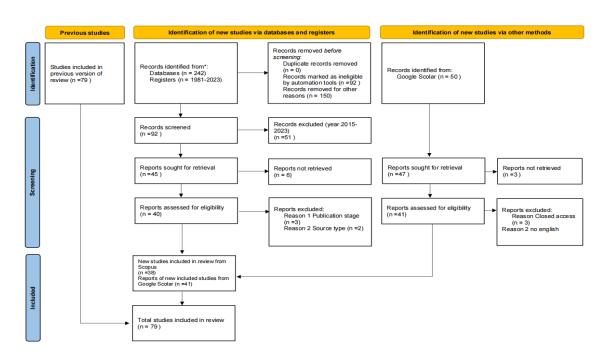




Figure.1. The Stages of Research

In our more traditional literature review (qualitative method), we collected articles on workplace environment and innovative Behaviour published in reputable journals. We identified their current research with the framework Research Title, Author, Year, Journal, H index/SJR, Research Question, Keywords, Topic, Country, Methodology, Approach, Context, Theory, Assumptions/Arguments/Hypothesis, Findings, Future Research, and Limitations. This procedure uses Excel to group and categorize the articles we review more efficiently. This provided a more comprehensive understanding by examining each article as a whole and then enriching our discussion. After a detailed understanding of each article reviewed, we categorized the themes found in each article. In this study, we used an inductive approach [29] to synthesize the secondary data. The resulting aggregated data was then coded and grouped into themes and aggregate dimensions, which were illustrated and analyzed.

Results and Discussion

In the last 10 years, the total number of publications by year, Workplace Environment and Innovative, showed significant fluctuations in the number of publications from 2014 to 2023.

Publication characteristics

This figure shows dynamic trends in academic attention to the work environment and innovation, reflecting changes in research interests or other external factors that influence publication productivity in this area. The following is a detailed explanation of the patterns shown in this figure.



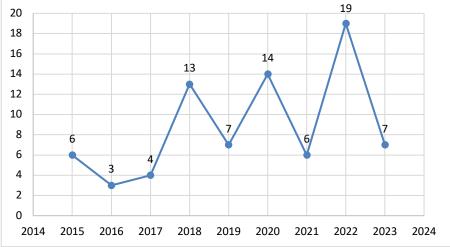


Figure 2. Total Numbers of Publications by Year Workplace Environment and Innovative Behavior

Source: Scopus and Google Scolar

Figure 2 shows dynamic trends in academic attention to the work environment and innovation, reflecting changes in research interests or other external factors that influence publication productivity in this area. The following is a detailed explanation of the patterns shown in this figure [30], which revealed that by creating such an environment, management could provide a motivational stimulus that is effective in guiding workers' proactive and innovative behavior. Another thing is that higher levels of job satisfaction contribute to increased innovative Behaviour. In addition, good leadership strengthens the relationship between team reflexivity and affective/normative commitment and reinforces the existing relationship between team reflexivity, affective commitment, and employee innovative behavior. This suggests that these factors interact to create a work environment that supports innovation.

Publication by Country

This figure shows the distribution of publications from different countries that address the topic of work environment and innovative Behaviour. The data reveals

differences in academic attention to this topic across countries, with China recording the highest number of publications compared to other countries. This information provides insight into the contribution of global research in the field.

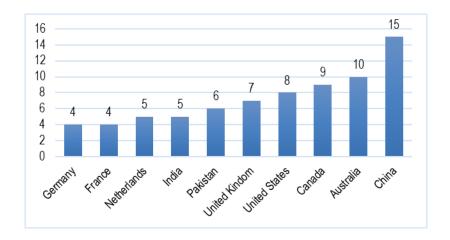


Figure 3. Publication by Country on Workplace Environment and Innovative Behavior Source: *Scopus*

Figure 3 shows that fifteen articles published in China discuss how organizational efficiency and creative leadership skills can be effectively developed to support, encourage, and reduce employee innovation in the workplace. The findings of this study suggest that an innovative and supportive organization is critical to creating an environment that enables employees to innovate. In other words, these factors can be important in enhancing innovative performance in the Chinese context. Through ten available articles, Australia examined how organizations can systematically use internal factors to encourage creative work practices. The importance of internal factors, such as organizational culture and work structure, are highlighted in this study for creating an environment that supports innovation. However, other things are going on, especially in Australia, which highlights the challenges in promoting innovative activities in countries with high sensitivity to irregularities, which can provide additional resources for experimentation and innovation in organizations. This analysis shows that organizational dynamics and internal factors play an essential role in fostering innovation, but individual businesses and existing policies must be considered when implementing them [31].

Publication by Author

This figure 4 displays the production of articles by research-related authors over some time. This visualization shows the number of articles published by each author and the trend of their contribution from year to year.

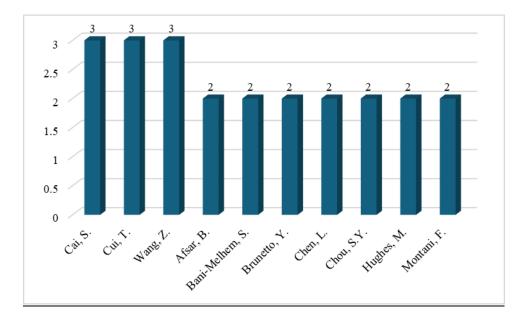


Figure 4. Publication by Author on Workplace Environment and Innovative Behavior Source: *Scopus*

A review of the existing literature on 'Work Environment and Innovative Behaviour' reveals a diverse yet complementary focus of study among authors [32], for example, underlines the critical role of organizational culture in encouraging innovative Behaviour, stating that values such as openness, collaboration, and risk-taking are essential in developing a work environment conducive to innovation. This assertion is further reinforced by the findings of [33], which show that employee engagement and empowerment, fostered through training, rewards, and participation in the decision-making process, contributes significantly to high innovative Behaviour. Thus, this discourse reinforces the idea that the human dimension of human resource management plays an essential role in fostering a creative work environment. At the same time, [34] investigated the role of technology and



digitalization in facilitating innovative transformation in the workplace. Their findings suggest that technology facilitates communication, accelerates decision-making, and provides quick access to relevant information. In contrast, research by [35] underlined the importance of transformational leadership, which encourages employee creativity and initiative, thereby fostering innovation. The role of visionary leaders in driving innovation was also emphasized.

Most Global Cited Documents

Table 1. Most Global Cited Documents Articles on Workplace Environment and Innovative Behavior

Paper	Total Citations	TC per Year	Normalized TC
[36], Determinants of employees' innovative behavior	177	25.29	3.49
[37], Examining the inverted U-shaped relationship between workload and innovative work behavior: The role of work engagement and mindfulness	166	16.60	2.53
[35], Innovative Behaviour, Trust, and Perceived Workplace Performance	138	27.60	4.69
[38], Linking Tolerance to Workplace Incivility, Service Innovative, Knowledge Hiding, and Job Search Behavior: The Mediating Role of Employee Cynicism	127	18.14	2.51
[39], The relationship between workplace spirituality and innovative work behavior: the mediating role of perceived person-organization fit	92	13.14	1.81

Source: Scopus

Of the five articles above, the role of the workplace environment in shaping innovative worker behavior was felt at the individual and team levels, and the effect varied based on the prevailing form of trust. And Sanya's results were positive.

Research Stream Workplace Environment and Innovative Behavior



Figure 5 below presents the results of a bibliometric analysis that illustrates the development of research themes related to 'The Role of Workplace Environment in Shaping Innovative Worker Behaviour during 2015-2023. Through this visualization, we can see how the research focus has changed over time, covering the interaction between individual Behaviour, innovation, and the organization's role. The following is a detailed explanation of the evolution of the identified themes.

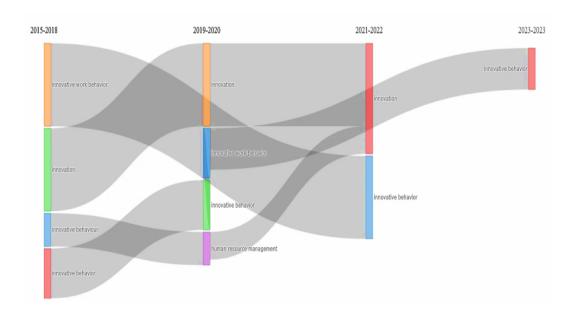


Figure 5. Research Stream (Network Visualization)

Source: Processed by Author Using R Studio

The data above illustrates the development of the research topic 'The Role of Workplace Environment in Shaping Innovative Worker Behaviour' from 2015 to 2023. This research focuses on individual innovation through themes such as 'innovative work behavior,' 'innovation,' and 'innovative behavior' during 2015-2018. These themes show how the work environment can influence an individual's ability to generate new ideas. 2019-2020 saw a diversification of themes with new sub-themes, such as 'human resource management,' which focuses on organizational performance, specifically human resource management practices, and policies, to support innovative work. The relationship between individuals and



organizations is increasing, indicating more complex interactions. Moreover, the relationship between individuals and organizations has become increasingly complex, as individuals are no longer passive executors but active agents of change. This interaction demands a more dynamic and adaptive management approach, prompting research to explore how HR strategies can strengthen the synergy between individual motivation and organizational goals. Thus, this thematic diversification reflects a response to the growing demands of a more competitive and innovation-driven work environment.

Furthermore, in 2021 and 2022, 'innovation' will be the dominant theme, emphasizing innovation processes at both individual and organizational levels. However, 'innovative behavior' is still relevant, making people pay more attention to their actions as catalysts for innovation. By the end of 2023, the research topic will be focused on 'innovative Behaviour, indicating that individual innovation is still the main focus of discussions on innovation. Overall, the evolution here refers to shifting research from a particular focus to an organizational focus before returning to a focus on the individual as the leading innovation agent. This study illustrates how a work environment that fosters innovation requires collaboration between individual efforts and organizational efforts, resulting in a holistic approach to promoting creativity and competitiveness. Innovation cannot rely solely on one individual or a single organization. A comprehensive approach is required—one that harmonizes individual aspirations with organizational plans—so that creativity can flourish and competitiveness can be enhanced.

Discussion

The work environment plays a significant role in fostering innovative work behavior (IWB) among employees. Several factors in the work environment play a role in this, including human resource practices, workplace spirituality, organizational climate, and employee engagement. Another is that higher levels of job satisfaction contribute to increased innovative behavior. In addition, good leadership strengthens the relationship between team reflexivity and affective/normative commitment and strengthens the existing relationship between team reflexivity, affective commitment, and employee innovative



behavior. This suggests that these factors interact with creating a work environment that supports innovation. Through the interaction of these factors, a work environment that supports innovation is created—one where employees feel valued, have the freedom to experiment, and are supported by both the organization and its leaders.

Through ten articles available, Australia examines how organizations can systematically use internal factors to foster creative work practices. The importance of internal factors, such as organizational culture and work structures, is highlighted in this study in creating an environment that supports innovation. However, other things are happening, especially in Australia, which highlights the challenges of promoting innovative activities in countries with high sensitivity to deviance, which can provide additional resources for experimentation and innovation in organizations. Therefore, a supportive work environment that includes effective HR practices, positive organizational climate, workplace spirituality, and high employee engagement is essential to foster innovative work behavior among employees. This analysis shows that organizational dynamics and internal factors play an important role in fostering innovation, but individual businesses and existing policies must be considered when implementing them. Based on the results of the research analysis, it was concluded that the hypothesis of this study was accepted, namely that there is a significant relationship between innovative behavior and the work environment in employees. This means that the more positive the work environment, the higher the innovative behavior of the employee. Conversely, the more negative the value of the work environment, the lower the innovative behavior. A facilitative environment makes employees feel comfortable trying new things and expressing ideas without fear of negative consequences. In contrast, when the work atmosphere is poor, employees tend to avoid risks and prefer to stick with conventional ways of working.

Conclusion

This research analyses the role of the workplace environment in shaping innovative worker behavior from 2015 to 2023 through bibliometric analysis. The conclusion of this



research has several main points. First, this research emphasizes individuals' creative behavior, highlighting the work environment's impact on individuals in creating new ideas. Over time, the research has evolved to include the role of human resource management as a factor that supports organizational performance in driving innovation. Furthermore, research in 2019 and 2020 emphasized the interaction between individuals and organizations, focusing on human resource management policies that encourage an innovative work environment. Then, in 2021-2022, the innovation theme emphasized the importance of collaboration between individuals and organizations in fostering a work culture that supports innovation.

By the end of 2023, attention will return to individual innovative behaviour as the primary innovation agent, although the organization's role remains essential. The findings emphasize the significance of building a culture that supports creativity, openness, and collaboration, which enables organizations to drive innovation and improve competitiveness and performance. Furthermore, this study also confirms several countries that examine the role of the workplace environment in shaping innovative worker behavior, such as China, which recorded the highest number of publications on the role of the work environment in innovation, emphasizing organizational efficiency and creative leadership skills. Furthermore, Australia also emphasizes the significance of internal organizational factors in stimulating innovation, including organizational culture and work structure. Research in these countries shows that a creative and supportive environment is essential for enhancing innovative performance in the workplace. This research emphasizes that an organizational culture that supports transparency, collaboration, and risk-taking is essential for creating an innovative work environment. Leadership is crucial in strengthening the link between the individual and the organization, encouraging innovative Behaviour in the workplace.

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