

Original Article | **Open Access** | Peer Reviewed



The Relationship between Ethical Leadership, Environmental Transformational Leadership, Environmental Concern, and Pro-Environmental Behavior in Chinese Manufacturing Textile SME

Yunxiao Zhang¹ and Hasliza Abdul Halim²

¹ University Sains Malaysia, 11800 Penang, Malaysia;
zhangyunxiao@student.usm.my; +86 15826187096.

² University Sains Malaysia, 11800 Penang, Malaysia; haslizahalim@usm.my.

Copyright and Permission:

© 2024. The Author(s). This is an open access article distributed under the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits sharing, adapting, and building upon this work, provided appropriate credit is given to the original author(s). For full license details, visit <https://creativecommons.org/licenses/by/4.0/>.

Address for Correspondence:

Hasliza Abdul Halim, University Sains Malaysia, 11800 Penang, Malaysia.
(haslizahalim@usm.my)

Article History:

Received: 30 July 2024; Accepted: 15 August 2024;
Published: 20 August 2024

Abstract This research aims at investigating the effects of ethical leadership (EL), environmental transformational leadership (ETL), and environmental concern on pro-environmental behaviour (PEB) of SMEs in the textile manufacturing sector in China. With SMEs accounting for more than 60% of China's GDP, it is imperative to encourage them to adopt sustainable practices, particularly textile industries that have major challenges affecting the environment. The study highlights a significant gap between environmental concern and actual pro-environmental behaviour, suggesting that awareness alone is insufficient to drive substantive change. It focuses on how managers can influence green organizational culture through which managers themselves promote environmental responsibility in their organizations and in addition encourage other organisational members to embrace environmentally friendly behaviors in their workplaces. However, several problems like prices volatility of raw material, increasing energy costs and low profit margin lead them unable to ignore sustainable environmental issues. The proposed conceptual framework provides understanding on how leadership can close the attitude-behaviour gap, towards encouraging pro-environment development strategies throughout the sector. Such relationships should be further validated in future empirical research done to understand the additional implications that come with them.

Keywords Ethical Leadership, Environmental Transformational Leadership, Environmental Concern, Pro-Environmental Behavior, Chinese Manufacturing Textile SMEs.

Volume 15, 2024

Publisher: The Brooklyn Research and Publishing Institute, 442 Lorimer St, Brooklyn, NY 11206, United States.

DOI: <https://doi.org/10.30845/ijbss.v15p24>

Reviewers: Opted for Confidentiality

Citation: Zhang, Y., and Halim, H. A. (2024). The Relationship between Ethical Leadership, Environmental Transformational Leadership, Environmental Concern, and Pro-Environmental Behavior in Chinese Manufacturing Textile SME. *International Journal of Business and Social Science*, 15, 234-246. <https://doi.org/10.30845/ijbss.v15p24>

1. Introduction

The manufacturing and service sectors SMEs are rapidly expanding their contribution to the economy of many countries across the globe including that of China where the number of SMEs is rising rapidly in recent years. Currently, SMEs contribute more than 60% of China's GDP and are more than 90% of all enterprises (Lam & Liu, 2020). According to the China Textile Industry Federation, SMEs in textile manufacturing industry was estimated to be around 90% of the total industry structure in 2021, covering all links of the industrial chain (Lu et al., 2021). From the employment point of view, SMEs account for 80% of the textile industry's workforce and are located at various levels of the value chain (Jia et al., 2020). These SMEs are very important in the creation of employment, enhancement of living standards, and support of entrepreneurship and innovation. Subsequent decomposition of the data of 2021 listed companies through Shen Yin Wanguo's industry classification shows that there are 34 A-share listed companies in the textile manufacturing industry, out of which 32% are SMEs (Xiang et al., 2022). It was found that SMEs are involved in the list of textile manufacturing companies as follows: In the main board market, 30 out of the 30 listed textile manufacturing companies; while in GEM, SMEs are as high as 50% among the 4 listed companies (Gao & Ren, 2023). As these statistics show, SMEs are indeed prevalent and play a crucial role in China's textile production sector.

However, the current pandemic has affected the usual production processes and business activities of textile SMEs. Even though the industry's production capacity reached over 70% in December 2022, there were issues with the epidemic affecting the start-up rates of some enterprises, and supply chains and sales were undermined (Luo & Ma, 2023). Furthermore, increasing the cost of raw materials and energy coupled with decreasing demand from downstream industries also cut down the profit margin.

Data show that more than 50% of the key textile enterprises achieved no more than 5% of net profit in December, and the proportion of non-profit enterprises reached 20% (Gu, 2024).

Textile industry is a responsibility-driven green industry, the establishment of a systematic green, low-carbon and closed industrial system is an important indicator and fundamental condition for the high-quality development of the industry (Xu et al., 2023). Overall, after the "13th Five-Year Plan" the textile industry of the country has made some progress in energy conservation and emission reduction, pollution control and resource usage, and green manufacturing system (Xiaoyi, 2023). However, with further improvement of industry standards, pressure on profits, and higher costs of raw materials, how the small and medium-sized textile enterprises (SMEs) can better coordinate the above factors and truly realize the green transformation in all aspects is a question.

The involvement of the employees in pro-environmental behaviour is not only required but also plays a crucial role in achieving the green development of the industry (Ansari, Farrukh & Raza, 2021). Enterprises need to promote the construction of a modern textile industry economy with 'professionalism, differentiation, and innovation.' From the perspective of the green development strategy of textile SMEs, employees' environmental behaviour becomes critical. Their participation in green production, energy conservation and labour practices which help in mitigating pollution and minimizing resource wastage helps enhance market and industry impact of enterprises (Javaid et al., 2022). By realizing that sustainable development is the way forward, the consumer is able to put his/her weight behind a company that has a green image. The environmental awareness and actions demonstrated by employees contribute to the overall transformation of the entire industry towards increased sustainability (Neruja & Arulrajah, 2021).

Chinese textile SMEs are mainly defined by low-cost competitive advantages, which makes them focus on low or medium-grade products and, most importantly, they still lack globally reputed brands which puts them in the lowest value-added chain (Lin, Ansell, & Siu, 2021). Due to the low profit-making in a developing economy like China, SMEs may not give much emphasis on environmental behaviors as relative bigger firms (Peredy, Yaouki & Laki, 2022). Most of the SMEs are likely to give preference to growth at the cost of environmental sustainability (Silva et al., 2021) and, as a matter of fact, growth has resulted in an enhanced pollution intensity of the SME sector (Van Song et al., 2022). At present, pollution control in SMEs has become a focus and a difficult issue in the industrial pollution prevention and control (Pylaeva et al., 2022).

There are several challenges that textile manufacturing SMEs experience. High labour costs augment the cost of production of enterprises, exports are vulnerable to outside forces like trade barriers, and the market is highly competitive with the presence of many less competitive enterprises (Chen, 2020). They also face problems of inadequate human capital especially in the development of technology and other high-quality products (Ong et al.,

2022). The textile manufacturing SMEs suffer from various problems in terms of market, finance, technology and talent which include inadequate order flows, restricted fund and shortage of skilled manpower (Gai et al., 2022). Hence, questions arise as to whether the performance of SME employees in terms of environmental behaviour can be helpful in the sustainable growth of the enterprise (Nugroho et al., 2022).

There is lack of an extensive literature examining the effects of the ethical and environmental transformational leadership styles on environmental behaviour within SMEs in China's textile industry (Sun et al., 2022). Studies show that leadership styles' role in promoting environmental behaviors may have been overlooked in previous SMEs research in China (Ozgul, 2022). Ethical leadership, which focuses on the truthfulness, moral character, and ethical actions of the leaders, affects employee's environmental conservation behaviour (Deyet al., 2022). On the other hand, environmental transformational leadership, that fosters innovation and change within individuals in the group, creates organisational responsiveness and fosters a vision of environmental goals (Novita et al., 2022). However, as mentioned above, the application and the effectiveness of these leadership styles and their relationship with the pro-environmental behaviors of Chinese textile SMEs still need more empirical investigation and research.

Ethical and environmental transformational leadership is a significant factor to build and communicate values within organizations, change employees' values and behaviors, and foster innovative ideas for sustainable environmental management (Azhar & Yang, 2022). However, there is a scarcity of research on pro-environmental behaviour at the employee level, with emphasis on the corporate level, green human resource management; and corporate environmental strategy studies (Banwo & Du, 2019; Foster et al, 2022; Yang et al., 2020).

Chinese SMEs play a critical role in the nation's economic development, but they face several challenges in integrating environmental transformational leadership (ETL), ethical leadership (EL), and pro-environmental behaviors (PEBs). Another notable conflict is the lack of focus on leadership growth, especially in terms of environmental sustainability. Considering the fact that SMEs are resource constrained, they do not usually have programs to foster leadership that creates awareness on environmental issues and changes employee behaviour.

Environmental concern which requires transformational leadership is still in its infancy in most of the SMEs. According to Zhao and Liang, 2023 and Wang et al., 2020, when leadership development is lacking, then the organisational culture does not change in a way that fosters the environmental values and thus the influence on the pro-environmental behaviors is compromised.

Another related gap is that there is a low level of awareness on environmental ethical standards among SMEs. While ethical leadership speaks of the general morality of a person, environmental responsibility is not included in the general ethical code. Because of this, leaders and managers fail to appreciate or recognize the ethics of the environment and integrate them into their decision-making system. Therefore, the environmental responsibility is not seen by the employees as part of the ethical culture of the organisation, and the ethical leadership has less impact on the development of environmental concern (Mughal et al., 2022; Banwo, 2019). Thus, the lack of clear environmental ethic creates a scenario whereby employees will rarely be encouraged to participate in PEBs.

2. Literature Review

2.1 Pro-Environmental Behaviour

In the empirical literature, PEB has been defined as "behaviors that intentionally try to reduce the harm caused by actions one undertakes on the natural and constructed environment" (Kollmuss and Agyeman 2002, p. 240). Steg & Vlek (2009) define PEB as "behavior that is as non-harmful to the environment as possible or even beneficial." The authors argue that PEB seeks to minimize environmental impacts by protecting natural resources and ecosystems. According to Schult (2014), PEB can be defined as "any action that an individual or group undertakes with the purpose of bringing about positive environmental outcome or preventing negative impact on the environment". In addition to the term PEB, other authors have referred to other terminologies in describing behaviours that are aimed at conserving the environment. These are the environmentally significant behaviour, the environmentally responsible behaviour, the environmentally concerned behaviour and the sustainable behaviour (Stern, 2000). Scholars mostly use self-reported measures to assess PEB (Steg and Vlek 2009) especially when using surveys, questionnaires or interviews to estimate respondent's behaviour.

Some of the theories that have been used in research on environmental behaviour include the theory of planned behaviour (Ajzen 1985; Greaves et al. 2013), the norm activation theory (Schwartz 1968), the value belief norms theory (Schwartz 2012) and the comprehensive action determination theory (Klöckner 2013). However, PEB has

other dimensions such as recycling, conservation of energy, conservation of water, transports usage behaviour, consumption behaviour and others as stated by Blankenberg and Alhusen (2018). As this paper seeks to establish the determinants of PEB with reference to the various theories and dimensions that explain PEB, the study revives information to the existing literature.

2.2 Ethical Leadership

According to Brown et al (2005), ethical leadership entails the act of maintaining and modelling the right standards of behaviour in organizations, and the communication, reinforcement and decision-making towards the followers. The term “normatively appropriate conduct” point to the ethical nature of ethical leaders, meaning that they have personality features such as responsibility, trustworthiness, honesty, and fairness in behaviors (Piccolo et al., 2010). Ethical leaders display ethical values, teach others about ethical concerns, encourage the correct behaviors, and discourage the wrong behaviors and effectively involve themselves in ethical identity (Brown et al., 2005). The perceived moral self-defines the willingness of the leaders towards the expectation and interest of other as the opposite actions leads to the condemnation of self and consequently the development of self- dissonance. Further, Brown and Trevino (2006) defined ethical leadership in terms of two aspects, namely the moral manager aspect which concerned the overall leader’s attempt to shape the ethical behaviors of the followers; the moral person aspect whereby ethical leadership was described by attributes such as honesty and integrity.

Leadership is an important aspect in any organization since it is also responsible for the right running of the organization and also the culture and the values of the organization. In the light of the argument made by Ciulla (1995) it is clear that two fundamental standards of a good leadership are the excellence and the ethics. Loyalty, fairness and empathy displayed in careers are not only the means of attaining moral career objectives, but also the ways of gaining the moral trust of followers (Fehr, Yam & Dang, 2015). Therefore, Ethical Leadership (EL) is a representation of fairness and empathy, gains respect and pro-organizational and fair treatment by practice of ethical conduct to subordinates.

2.3 Environmental Transformational leadership

Transformational leadership has been extensively discussed as a highly efficient model for promoting change, inspiring employees, and encouraging innovation (Bass, 1985; Bass & Avolio, 1994). Environmental transformational leadership (ETL) is a development of the general transformational leadership framework, which incorporates environmental responsibility and envisions and encourages stakeholders to act sustainably (Robertson & Barling, 2013). Environmental Transformational Leadership builds upon the four key components of transformational leadership: The four types of leadership that have been identified by Bass (1985) include the following: The first is the idealized influence; The second is inspirational motivation; The third is intellectual stimulation; and the last is individual consideration. ETL managers can use these components to foster sustainability culture or culture that supports ecological sustainability in the organisation (Boehm et al., 2015).

Notably, transformational leadership focused on specific goals, like safety leadership, has demonstrated positive outcomes (Korejan & Shahbazi, 2016; Liao & Chuang, 2007; Bono & Anderson, 2005). Some scholars have even used transformational leadership in subdomains including parenting behaviour (Mydzian, 2017; Karakitapoğlu-Aygün & Gumusluoglu et al., 2013). It has also been expanded to other areas in the latest studies and a new style known as Environmental Transformational Leadership (ETL) was developed with emphasis on supporting pro-environmental actions (Omarova & Jo, 2022; Althnayan, Alarifi, Bajaba & Alsabban, 2022). Environmental transformational leadership is a form of transformational leadership for environmental It is also an environmental leadership grounded on behavioral theories (Singh, Del Giudice, Chierici & Graziano, 2020).

2.4 Environment Concern

Environmental concern is defined as the level of attention or interest people have for protection of the environment and the associated factors like pollution, climate change, and depletion of natural resources. It is a very important factor in determining the behaviors of a single person and the society towards sustainable development. Environmental concern has been defined in general terms as “the level of consciousness and willingness to act on environmental issues” (Franzen and Vogl, 2013:119). Cognitive, affective and behavioral dimensions are some of the aspects defining this concept. Cognitively, environmental concerns defined as the understanding of environmental problems; affectively, it is the anxiety or fear towards the environment; and behaviorally, it is the effort towards

causing minimal damage to the environment (Dunlap & Van Liere, 1978). Environmental concern is defined based on the object and content of the study. Environmental concern has been described as the appraisal of, or orientation toward, events and behaviors that impact the environment (Meng and Choi, 2016; Schultz, et al., 2005). In addition to that, Bamberger (2021) also extended the meaning of environmental concern in his studies as the belief, feeling, cognition, attitude, and behaviour towards the environment. The one that enjoys the most acceptances at the moment is Dunlap's notion that environmental concern is how people view environmental issues and their capacity to act and willingness to help address these issues. To this extent, it is the level of concern and vigilance people demonstrate as well as the effort they apply towards addressing the environmental issues in their midst (Pihkala, 2017).

The first theoretical perspectives of environmental concern defined concern as knowledge about the environment and expected that environmental knowledge would translate into more environmentally friendly behaviour (Schultz, 2001). However, more recent studies have pointed out that the relationship is not that simple and that emotional and social influences are also an important factor in influencing environmental concern and behaviour (Gifford & Nilsson, 2014).

3. Relationship and Hypothesis

3.1 The relationship between Ethical Leadership and Environment Concern

The connection between ethical leadership and environmental concern is incredibly deep at the same time as multifaceted, as the possibility of impacting real positive change within people and organizations is massive. As stated by Eisenbeiss, (2012), ethical leadership relates to the way leaders conduct themselves and address others when it comes to environmental issues, and this are attained through ethical principles. In addition to what has been stated, leaders who display ethical behaviors act as role models and stress on the need to protect the environment (Mihelic et al., 2010; Huhtala et al., 2013).

Ethical leaders always display some acts which depict their concern in environmental conservation and the need for sustainable use of natural resources (Lara & Doyen, 2008). They incorporate environmental values in their problem-solving approaches, applying different ethical practices like, pro-ecological decision-making, recycling, and rubbish disposal (Čapienė et al., 2021). This association between ethical leadership and organizational commitments to the environment is not a mere academic discourse; it has practical realities on the ground like undertaking of green technologies, practicing sustainable initiatives as well as evolving measures to counter the negative impacts of the environment (Mitonga- Monga & Cilliers, 2016).

Ethical leadership does not only focus on the actions of the leaders but rather has a deeper influence on the followers having a substantial impact on their attitudes and behaviors (Stouten et al., 2012). Lawton and Páez, (2015) posit that when the employees and the stakeholders of an organization observe organizational leaders making ethical decisions for the environment, this fosters an environmental culture within the organisation. This modelling and reinforcement mechanism makes people to adopt the environmental values that are seen in the environment and practice them making a wider environmental sensitivity or awareness (Ko, 2018). On the basis of this discussion, the following hypothesis is postulated.

H1: Ethical leadership positively influences environmental concern in Chinese Manufacturing Textile SMEs.

3.2 The relationship between Environmental Transformational Leadership and Environment Concern

ETL, as a form of transformational leadership, helps to raise environmental concern by being a 'green model,' embedding the company's green vision, and inspiring subordinates/managers/businesses to achieve higher green goals (Waldman et al., 2006; Singh et al., 2020). This leadership behaviour assists top managers to emphasise the strategic organisational commitment of environmental conservation, which in turn forces them to adopt and integrate new environmental management strategies. Prior research confirms that ETL has a positive effect on increasing environmental concern among employees (Farrukh et al., 2022; Hussain, 2022).

ETL concerns the company's environmental management and gives the employees an awareness of the environment by giving them high-level, positive, cultural values to emulate, including freedom, justice, fairness, and humanism (Althnayan, 2022; Peng et al., 2021). They communicate a passionate and clear green allowance, define concrete sustainability objectives, and infuse the organisation's culture with biosphere values, stressing the tenets of stewardship for the environment (Crucke et al., 2022). They facilitate going above the self-quest and in embracing

organizational environment objectives, promulgate altruistic values (Soni, 2000). The mentioned values are self-transcendent and imply a deep concern to the organizational environmental goals thereby promoting high environmental consciousness.

Additionally, ETL leaders ensure there is pressure on the employees to change the existing environmental management practices thereby encouraging organizational innovation values (Huang et al., 2021). They get to create staff knowledge and skills for green innovation as they identify and focus on fulfilling personal needs and employee meaning. Management operates at the higher level to improve the employees' preparedness and capacity for change, thereby adding more meaning to green management practices (Chen et al., 2019). This approach helps to change employees' perception regarding the threats and risks of environmental issues to realize and endorse the environmental concerns of the leader, minimizes the discrepancies between the leader and other staff members and makes them aligned towards the organizational environmental objectives (Mi et al., 2019). Based on the discussion, it is possible to make the following assumption:

H2: Environmental transformational leadership positively influences environmental concern in Chinese Manufacturing Textile SMEs.

3.3 The relationship between Environment Concern and Pro-environmental Behavior

According to Manika et al., 2015, environmental concern is a positive attitude towards the environment. Environmental concern is the main focus of environmental research and a major factor influencing consumers' decisions. Research studies reveal that the link between environmental concern and other environmental attitudes and pro-environmental behavior is rather weak and varies across countries (Tam & Chan, 2017; Xu et al., 2021; HuddartKennedy et al., 2015).

Research had also revealed that a customer with a greater perceived responsibility for the environment, a greater concern for the environment, and a greater support for environmental goods and services (Lange et al., 2018; Aman et al., 2021). They normally have the perception that environmental issues are as a result of human actions, and this has a positive influence on changing their behaviour in order to minimize on the harm they may cause on the environment (Bruderer & Diekmann, 2015). Furthermore, people with a high level of environmental concern are more likely to understand the relationship between human and the environment (Wu et al., 2021), especially when they have the responsibility of conserving the environment with endangered ecosystems; they are more willing to act towards the solution of environmental issues (Balundé et al., 2019; Kim & Yun, 2019). This indicates the need to integrate a sense of environment responsibility as a way of enhancing the environmental concern and the corresponding behaviour.

However, some researchers have also noted that while the awareness of the environment and concern is on the rise, there is still a huge disconnect between the perception and actions that individuals take (Mónus, 2021; Huang et al., 2020; Tam, & Chan., 2017). This is evidenced by the fact that even those who claim to "care for the environment" do not always engage in Pro-environmental Behaviour, more so when purchasing green products. This implies that even though there seems to be a global growth of environmental consciousness, or what can be referred to as rise in environmental concern, this does not translate to higher rates of Pro- environmental Behaviour (Chwialkowska, 2020; Rhead, 2015; Huddart Kennedy et al., 2015). In view of the discussion, we would like to formulate the following hypothesis:

Hypothesis 3: Environmental concern has a positive effect on Pro-environmental Behavior in Chinese Manufacturing Textile SMEs.

4. Proposed Framework

This current study stressed on the relationship between ethical leadership, environmental transformational leadership, environmental concern, and pro-environmental behaviour based on prior research. The following conceptual model is proposed below in figure 1.

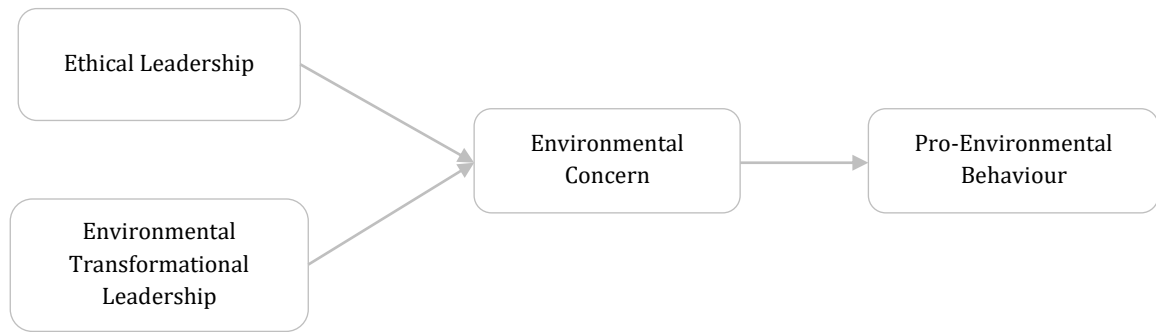


Figure 1: Conceptual Model

5. Discussion and Conclusion

Organizational ethical leaders contribute to environmental ethical decisions through practices that include using environmentally friendly technologies, practicing environmental conservation, and designing policies that minimize the effects on the environment. Their behaviour is personal, but it is also felt by the followers because it is an indication of their attitude. Ethical leadership and environmental concern: the degree and nature of the connection are far-reaching and multifaceted for individual and organizational behaviour. Ethical Leadership Environmental Transformational Leadership Environmental Concern Pro- Environment a Ethical leaders ensure that issues of environment are taken into consideration in decision making thus promoting environmental consciousness in organizations. This modelling effect creates, obliges the employees to adopt and imbibe the environmental values into their own practices and thus create a wider organisational commitment to environmental concern.

ETL greatly influences environmental concern as a “green role model,” as a communication of the organization’s environmental vision, and encouraging the execution of more challenging environmental goals from managerial and business unit perspectives (Lange et al., 2018; Hadi et al., 2017). This leadership style re-emphasises the organisation’s stewardship responsibility of the environment as well as promoting the implementation of new environments. Research findings indicate that there is a positive relationship between the ETL and the environmental concern among employees. ETL improves the environmental accountability of the corporate sector mainly because the programme encourages a higher system of values like freedom, justice, fairness and humanism. Furthermore, ETL leaders seek to promote shift in the environmental management practices from the existing ones and advocate for pro-innovation values among their employees. It is based on the provision of specialised suggestions to increase employees’ competencies in green innovation, which also assists them in discovering more value in their work, as well as finding the perspectives with the leader’s environmental objectives.

Environmental concern or the extent of respondent’s attitude towards the environment is an important variable that informs environmental research and decision making. The literature review shows that environmental consciousness of consumers is positively correlated with consumer concern over environmental problems and consumer attitudes towards green products. Such persons tend to believe that environmental issues are chiefly resultant of actions carried out by people, thus they are willing to partake in activities that will help lessen the detrimental effects of the environment. They are also more conscious of the interdependence between humans and the environment especially with regards to environment sensitive areas thus they act. A significant body of literature reveals that, although awareness of environmental issues has risen significantly in the recent past, there is a considerable behavioral gap between people’s perception and action.

6. Implications

Ethical leadership and Environmental Transformational Leadership (ETL) have a far-reaching impact on environmental concern and behaviour within an organization. To reap from these benefits, there is the need for organizations to pursue leadership development programs that incorporate ethical and sustainable leadership. Such programs should target honing the leadership skills of the officials in handling the ethical issues, promoting and implementing strong environmental policies as well as incorporating the sustainability principles within their decision-making systems. Thus, by developing such skills in leaders, organizations shall be able to promote environmental sustainability and create more positive impact. Implementing ethical leadership and ETL into

organisational practices not only helps internal sustainability initiatives but also has a knock-on effect of inspiring other organisations, thus creating a chain of extending the importance and practice of sustainability across industries.

But the study also found that there is a large discrepancy between respondents' level of environmental concern and their behavioral change towards the environment. This implies that even though there is an improvement in awareness of the environment this alone may not compel the people to change their behaviour significantly. To fill this gap, more effort should be directed towards ensuring that organizations and policymakers get to understand and overcome all the barriers that may hinder the expression of concern to action. This could entail identifying factors which may include inadequate information, perceived inconvenience or costs and then correcting those by offering a specific series of steps on how clients can make environmentally friendly decisions. Organizations should thus create awareness of environmental responsibility and remind people how their actions directly impact the environment to improve on the sustainability initiatives of organizations and promote a positive change for the environment.

7. Limitation and future directions

The current study enriches the current knowledge by proposing a conceptual framework and examines the relationships between ethical leadership, environmental transformational leadership, environmental concern and pro-environmental behaviour from the previous research. However, there are several limitations which include: Firstly, the manufacturing SMEs in China are highlighted, which means that the study has a contextual uniqueness that may restrict the transferability of the outcomes. The findings may not be transferable to organisations in other countries or regions due to the differences in the economic, cultural and regulatory structures in China. Furthermore, focusing on the manufacturing sector may mask the dynamics that are found in other sectors such as the services or technology sector where practices and challenges are unique. The cultural setting in China could also bring about some biases whereby what is considered ethical leadership and or how environmentally conscious may differ from what is considered global standard. In addition, the current model should be subjected to empirical testing to warrant the current discussion based on literature.

Conflict of Interest: None declared.

Ethical Approval: Not applicable.

Funding: None.

References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control: From cognition to behavior* (pp. 11-39). Berlin, Heidelberg: Springer Berlin Heidelberg.
- Althnayan, S., Alarifi, A., Bajaba, S., & Alsabban, A. (2022). Linking environmental transformational leadership, environmental organizational citizenship behavior, and organizational sustainability performance: A moderated mediation model. *Sustainability*, 14(14), 8779.
- Althnayan, S., Alarifi, A., Bajaba, S., & Alsabban, A. (2022). Linking environmental transformational leadership, environmental organizational citizenship behavior, and organizational sustainability performance: A moderated mediation model. *Sustainability*, 14(14), 8779.
- Aman, S., Hassan, N. M., Khattak, M. N., Moustafa, M. A., Fakhri, M., & Ahmad, Z. (2021). Impact of tourist's environmental awareness on pro-environmental behavior with the mediating effect of tourist's environmental concern and moderating effect of tourist's environmental attachment. *Sustainability*, 13(23), 12998.
- Ansari, N. Y., Farrukh, M., & Raza, A. (2021). Green human resource management and employees' pro-environmental behaviours: Examining the underlying mechanism. *Corporate Social Responsibility and Environmental Management*, 28(1), 229-238.
- Azhar, A., & Yang, K. (2022). Examining the influence of transformational leadership and green culture on pro-environmental behaviors: Empirical evidence from Florida city governments. *Review of Public Personnel Administration*, 42(4), 738-759.
- Balundė, A., Perlaviciute, G., & Steg, L. (2019). The relationship between people's environmental considerations and pro-environmental behavior in Lithuania. *Frontiers in psychology*, 10, 2319.

- Bamberger, B., Homburg, C., & Wielgos, D. M. (2021). Wage inequality: Its impact on customer satisfaction and firm performance. *Journal of Marketing*, 85(6), 24-43.
- Banwo, A. O., & Du, J. (2019). Workplace pro-environmental behaviors in small and medium-sized enterprises: An employee level analysis. *Journal of Global Entrepreneurship Research*, 9(1), 34.
- Banwo, A. O., & Du, J. (2019). Workplace pro-environmental behaviors in small and medium-sized enterprises: An employee level analysis. *Journal of Global Entrepreneurship Research*, 9(1), 34.
- Bass, B. M., & Avolio, B. J. (1994). Transformational leadership and organizational culture. *The International journal of public administration*, 17(3-4), 541-554.
- Bass, B. M., & Bass Bernard, M. (1985). *Leadership and performance beyond expectations*.
- Blankenberg, A. K., & Alhusen, H. (2018). On the Determinants of Pro-Environmental Behavior-a Guide for Further Investigations. A Literature Review and Guide for the Empirical Economist; No. 350. Center for European, Governance, and Economic Development Research: University of Göttingen, Göttingen, Germany.
- Boehm, S. A., Dwertmann, D. J., Bruch, H., & Shamir, B. (2015). The missing link? Investigating organizational identity strength and transformational leadership climate as mechanisms that connect CEO charisma with firm performance. *The leadership quarterly*, 26(2), 156-171.
- Brown, M. E., & Trevino, L. K. (2006). Socialized charismatic leadership, values congruence, and deviance in work groups. *Journal of applied psychology*, 91(4), 954.
- Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational behavior and human decision processes*, 97(2), 117-134.
- Bruderer Enzler, H., & Diekmann, A. (2015). Environmental impact and pro-environmental behavior: Correlations to income and environmental concern (No. 9). ETH Zurich, Chair of Sociology.
- Čapienė, A., Rūteliūnė, A., & Tvaronavičienė, M. (2021). Pro-environmental and pro-social engagement in sustainable consumption: Exploratory study. *Sustainability*, 13(4), 1601.
- Chen, C. L. (2020). Cross-disciplinary innovations by Taiwanese manufacturing SMEs in the context of Industry 4.0. *Journal of Manufacturing Technology Management*, 31(6), 1145-1168.
- Chen, J. X., Sharma, P., Zhan, W., & Liu, L. (2019). Demystifying the impact of CEO transformational leadership on firm performance: Interactive roles of exploratory innovation and environmental uncertainty. *Journal of Business Research*, 96, 85-96.
- Chien, F., Ngo, Q. T., Hsu, C. C., Chau, K. Y., & Iram, R. (2021). Assessing the mechanism of barriers towards green finance and public spending in small and medium enterprises from developed countries. *Environmental Science and Pollution Research*, 28(43), 60495-60510.
- Chwialkowska, A., Bhatti, W. A., & Glowik, M. (2020). The influence of cultural values on pro- environmental behavior. *Journal of Cleaner Production*, 268, 122305.
- Ciulla, J. B. (1995). Leadership ethics: Mapping the territory. *Business ethics quarterly*, 5-28.
- Crucke, S., Servaes, M., Kluijtmans, T., Mertens, S., & Schollaert, E. (2022). Linking environmentally-specific transformational leadership and employees' green advocacy: The influence of leadership integrity. *Corporate Social Responsibility and Environmental Management*, 29(2), 406-420.
- De Lara, M., & Doyen, L. (2008). *Sustainable management of natural resources: mathematical models and methods*. Springer Science & Business Media.
- Dey, M., Bhattacharjee, S., Mahmood, M., Uddin, M. A., & Biswas, S. R. (2022). Ethical leadership for better sustainable performance: Role of employee values, behavior and ethical climate. *Journal of Cleaner Production*, 337, 130527.
- Dunlap, R. E., & Van Liere, K. D. (1978). The "new environmental paradigm". *The journal of environmental education*, 9(4), 10-19.
- Eisenbeiss, S. A. (2012). Re-thinking ethical leadership: An interdisciplinary integrative approach. *The Leadership Quarterly*, 23(5), 791-808.
- Farrukh, M., Ansari, N., Raza, A., Wu, Y., & Wang, H. (2022). Fostering employee's pro- environmental behavior through green transformational leadership, green human resource management and environmental knowledge. *Technological Forecasting and Social Change*, 179, 121643.
- Fehr, R., Yam, K. C., & Dang, C. (2015). Moralized leadership: The construction and consequences of ethical leader perceptions. *Academy of management review*, 40(2), 182-209.

- Foster, B., Muhammad, Z., Yusliza, M. Y., Faezah, J. N., Johansyah, M. D., Yong, J. Y., ... & Fawehinmi, O. (2022). Determinants of pro-environmental behaviour in the workplace. *Sustainability*, 14(8), 4420.
- Franzen, A., & Vogl, D. (2013). Two decades of measuring environmental attitudes: A comparative analysis of 33 countries. *Global Environmental Change*, 23(5), 1001-1008.
- Gai, Y., Qiao, Y., Deng, H., & Wang, Y. (2022). Investigating the eco-efficiency of China's textile industry based on a firm-level analysis. *Science of the Total Environment*, 833, 155075.
- Gao, X., & Ren, Y. (2023). The impact of digital finance on SMEs financialization: Evidence from thirty million Chinese enterprise registrations. *Heliyon*, 9(8).
- Gherghina, Ș. C., Botezatu, M. A., Hosszu, A., & Simionescu, L. N. (2020). Small and medium-sized enterprises (SMEs): The engine of economic growth through investments and innovation. *Sustainability*, 12(1), 347.
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International journal of psychology*, 49(3), 141-157.
- Greaves, M., Zibarras, L. D., & Stride, C. (2013). Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *Journal of Environmental Psychology*, 34, 109-120.
- Gu, Z. (2024). A Comparative Analysis of Financing Channels for Small and Medium-sized Enterprises (SMEs). *Highlights in Business, Economics and Management*, 24, 1147-1151.
- Hadi, N. U., & Rasool, F. (2017). Environmental transformational leadership and employee pro- environmental behaviours: The bridging role of autonomous motivation. *Abasyn Journal of Social Sciences*, 10, 42-53.
- Huang, L., Wen, Y., & Gao, J. (2020). What ultimately prevents the pro-environmental behavior? An in-depth and extensive study of the behavioral costs. *Resources, Conservation and Recycling*, 158, 104747.
- Huang, S. Y., Ting, C. W., & Li, M. W. (2021). The effects of green transformational leadership on adoption of environmentally proactive strategies: The mediating role of green engagement. *Sustainability*, 13(6), 3366.
- Huddart Kennedy, E., Krahn, H., & Krogman, N. T. (2015). Are we counting what counts? A closer look at environmental concern, pro-environmental behaviour, and carbon footprint. *Local Environment*, 20(2), 220-236.
- Huddart Kennedy, E., Krahn, H., & Krogman, N. T. (2015). Are we counting what counts? A closer look at environmental concern, pro-environmental behaviour, and carbon footprint. *Local Environment*, 20(2), 220-236.
- Huhtala, M., Kangas, M., Lämsä, A. M., & Feldt, T. (2013). Ethical managers in ethical organisations? The leadership-culture connection among Finnish managers. *Leadership & Organization Development Journal*, 34(3), 250-270.
- Hussain, Y., Abbass, K., Usman, M., Rehan, M., & Asif, M. (2022). Exploring the mediating role of environmental strategy, green innovations, and transformational leadership: the impact of corporate social responsibility on environmental performance. *Environmental science and pollution research*, 29(51), 76864-76880.
- Javaid, M., Haleem, A., Singh, R. P., & Suman, R. (2022). Virtual Reality Applications in the Manufacturing Field. In *Modern Manufacturing Systems* (pp. 107-122). Apple Academic Press.
- Jia, C., Tang, X., & Kan, Z. (2020). Does the nation innovation system in China support the sustainability of small and medium enterprises (SMEs) innovation? *Sustainability*, 12(6), 2562.
- Karakitapoğlu-Aygün, Z., & Gumusluoglu, L. (2013). The bright and dark sides of leadership: Transformational vs. non-transformational leadership in a non-Western context. *Leadership*, 9(1), 107-133.
- Kim, T., & Yun, S. (2019). How will changes toward pro-environmental behavior play in customers' perceived value of environmental concerns at coffee shops? *Sustainability*, 11(14), 3816.
- Klöckner, C. A. (2013). A comprehensive model of the psychology of environmental behaviour—A meta-analysis. *Global environmental change*, 23(5), 1028-1038.
- Ko, C., Ma, J., Bartnik, R., Haney, M. H., & Kang, M. (2018). Ethical leadership: An integrative review and future research agenda. *Ethics & Behavior*, 28(2), 104-132.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental education research*, 8(3), 239-260.
- Korejan, M. M., & Shahbazi, H. (2016). An analysis of the transformational leadership theory. *Journal of fundamental and applied sciences*, 8(3), 452-461.
- Lam, W. R., & Liu, Y. (2020). Tackling Small and Medium-Sized Enterprises (SMEs) Financing in China. *Annals of Economics & Finance*, 21(1).

- Lange, F., Steinke, A., & Dewitte, S. (2018). The Pro-Environmental Behavior Task: A laboratory measure of actual pro-environmental behavior. *Journal of Environmental Psychology*, 56, 46- 54
- Lange, F., Steinke, A., & Dewitte, S. (2018). The Pro-Environmental Behavior Task: A laboratory measure of actual pro-environmental behavior. *Journal of Environmental Psychology*, 56, 46- 54.
- Lawton, A., & Páez, I. (2015). Developing a framework for ethical leadership. *Journal of Business Ethics*, 130, 639-649.
- Liao, H., & Chuang, A. (2007). Transforming service employees and climate: a multilevel, multisource examination of transformational leadership in building long-term service relationships. *Journal of applied psychology*, 92(4), 1006.
- Lin, F., Ansell, J., & Siu, W. S. (2021). Chinese SME development and industrial upgrading. *International Journal of Emerging Markets*, 16(6), 977-997.
- Lu, L., Peng, J., Wu, J., & Lu, Y. (2021). Perceived impact of the Covid-19 crisis on SMEs in different industry sectors: Evidence from Sichuan, China. *International Journal of Disaster Risk Reduction*, 55, 102085.
- Luo, W., & Ma, Y. (2023). Impact of environmental policy on the innovation of SMEs: Chinese evidence. *Economic Analysis and Policy*, 79, 917-928.
- Manika, D., Wells, V. K., Gregory-Smith, D., & Gentry, M. (2015). The impact of individual attitudinal and organisational variables on workplace environmentally friendly behaviours. *Journal of Business Ethics*, 126, 663-684.
- Meng, B., & Choi, K. (2016). The role of authenticity in forming slow tourists' intentions: Developing an extended model of goal-directed behavior. *Tourism Management*, 57,397-410.
- Mi, L., Gan, X., Xu, T., Long, R., Qiao, L., & Zhu, H. (2019). A new perspective to promote organizational citizenship behaviour for the environment: The role of transformational leadership. *Journal of Cleaner Production*, 239, 118002.
- Mihelic, K. K., Lipicnik, B., & Tekavcic, M. (2010). Ethical leadership. *International Journal of Management & Information Systems (Online)*, 14(5).
- Mitonga-Monga, J., & Cilliers, F. (2016). Perceived ethical leadership: Its moderating influence on employees' organisational commitment and organisational citizenship behaviours. *Journal of Psychology in Africa*, 26(1),35-42.
- Mónus, F. (2021). Environmental perceptions and pro-environmental behavior-comparing different measuring approaches. *Environmental Education Research*, 27(1), 132-156.
- Mughal, M. F., Cai, S. L., Faraz, N. A., & Ahmed, F. (2022). Environmentally specific servant leadership and employees' pro-environmental behavior: Mediating role of green self-efficacy. *Psychology Research and Behavior Management*, 305-316.
- Mydzian, J. S. (2017). Leadership Characteristics of School Psychologists When Supporting Social and Emotional Learning: A Quantitative Analysis Using a Nationally Randomized Sample. Robert Morris University.
- Neruja, S., & Arulrajah, A. A. (2021). The Impact of Environmental Knowledge and Awareness on Sustainability Performance of Organizations: The Mediating Role of Employee Green Behaviour. *International Business Research*, 14(9), 1-68.
- Novita, D., Hidayatulloh, A. N., Renwarin, J. M., Santoso, R., & Mardikaningsih, R. (2022). Relationship Between Eco Transformational Leadership, Eco Training, and Employee Eco Behavior on Sustainable Corporate Performance of SMEs. *Frontiers in Psychology*, 13, 900787.
- Nugroho, M. I. (2022). Global value chains participation to enhance export: Evidence from Indonesian apparel SMEs. *Journal of Socioeconomics and Development*, 5(1),99-114.
- Omarova, L., & Jo, S. J. (2022). Employee Pro-Environmental Behavior: The Impact of Environmental Transformational Leadership and GHRM. *Sustainability*, 14 (4), 2046.
- Ong, X., Freeman, S., Goxe, F., Guercini, S., & Cooper, B. (2022). Outsidership, network positions and cooperation among internationalizing SMEs: An industry evolutionary perspective. *International Business Review*, 31(3), 101970.
- Ozgul, B. (2022). Does green transformational leadership develop green absorptive capacity? The role of internal and external environmental orientation. *Systems*, 10(6), 224.
- Peng, J., Chen, X., Zou, Y., & Nie, Q. (2021). Environmentally specific transformational leadership and team pro-environmental behaviours: The roles of pro-environmental goal clarity, pro- environmental harmonious passion, and power distance. *Human Relations*, 74(11), 1864- 1888.
- Peredy, Z., Yaouki, X., & Laki, B. (2022). Challenges of the Innovative Chinese Small and Medium Sized Enterprises (SME's) in the Last Decade. *Acta Periodica (Edutus)*, 24, 19-35.

- Piccolo, R. F., Greenbaum, R., Hartog, D. N. D., & Folger, R. (2010). The relationship between ethical leadership and core job characteristics. *Journal of organizational behavior*, 31(2&3), 259-278.
- Pihkala, P. (2017). Environmental education after sustainability: Hope in the midst of tragedy. *Global Discourse*, 7(1), 109-127.
- Popper, M., & Mayseless, O. (2003). Back to basics: Applying a parenting perspective to transformational leadership. *The Leadership Quarterly*, 14(1), 41-65.
- Pylaeva, I. S., Podshivalova, M. V., Alola, A. A., Podshivalov, D. V., & Demin, A. A. (2022). A new approach to identifying high-tech manufacturing SMEs with sustainable technological development: Empirical evidence. *Journal of Cleaner Production*, 363, 132322.
- Rhead, R., Elliot, M., & Upham, P. (2015). Assessing the structure of UK environmental concern and its association with pro-environmental behaviour. *Journal of Environmental Psychology*, 43, 175-183.
- Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of organizational behavior*, 34(2), 176-194.
- Ruepert, A., Keizer, K., Steg, L., Maricchiolo, F., Carrus, G., Dumitru, A., ... & Moza, D. (2016). Environmental considerations in the organizational context: A pathway to pro-environmental behaviour at work. *Energy Research & Social Science*, 17, 59-70.
- Saad Alessa, G. (2021). The dimensions of transformational leadership and its organizational effects in public universities in Saudi Arabia: A systematic review. *Frontiers in psychology*, 12, 682092.
- Schultz, P. W. (2001). The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of environmental psychology*, 21(4), 327-339.
- Schultz, P. W. (2014). Strategies for promoting proenvironmental behavior. *European Psychologist*.
- Schultz, P. W., Gouveia, V. V., Cameron, L. D., Tankha, G., Schmuck, P., & Franěk, M. (2005). Values and their relationship to environmental concern and conservation behavior. *Journal of cross-cultural psychology*, 36(4), 457-475.
- Schwartz, S. H. (1968). Words, deeds and the perception of consequences and responsibility in action situations. *Journal of personality and social psychology*, 10(3), 232.
- Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online readings in Psychology and Culture*, 2(1), 11.
- Silva, G. M., Gomes, P. J., Carvalho, H., & Gerales, V. (2021). Sustainable development in small and medium enterprises: The role of entrepreneurial orientation in supply chain management. *Business Strategy and the Environment*, 30(8), 3804-3820.
- Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological forecasting and social change*, 150, 119762.
- Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological forecasting and social change*, 150, 119762.
- Soni, M. (2023). Mediating role of pro-environmental behavior in environmentally specific transformational leadership and subjective well-being. *Benchmarking: An International Journal*, 30(5), 1485-1505.
- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of environmental psychology*, 29(3), 309-317.
- Steg, L., & Vlek, C. (2009). Social science and environmental behaviour. In *Principles of environmental sciences* (pp. 97-141). Dordrecht: Springer Netherlands.
- Stern, P. C. (2000). New environmental theories: toward a coherent theory of environmentally significant behavior. *Journal of social issues*, 56(3), 407-424.
- Stouten, J., Van Dijke, M., & De Cremer, D. (2012). Ethical leadership. *Journal of Personnel Psychology*.
- Sun, X., El Askary, A., Meo, M. S., & Hussain, B. (2022). Green transformational leadership and environmental performance in small and medium enterprises. *Economic Research- Ekonomska Istraživanja*, 35(1), 5273-5291.

- Tam, K. P., & Chan, H. W. (2017). Environmental concern has a weaker association with pro- environmental behavior in some societies than others: A cross-cultural psychology perspective. *Journal of Environmental Psychology*, 53, 213-223.
- Van Song, N., Mai, T. T. H., Thuan, T. D., Van Tien, D., Phuong, N. T. M., Van Ha, T., ... & Uan, T. B. (2022). SME financing role in developing business environment and economic growth: empirical evidences from technical SMEs in Vietnam. *Environmental Science and Pollution Research International*, 29(35), 53540.
- Waldman, D. A., Sully de Luque, M., Washburn, N., House, R. J., Adetoun, B., Barrasa, A., & Wilderom, C. P. (2006). Cultural and leadership predictors of corporate social responsibility values of top management: A GLOBE study of 15 countries. *Journal of international business studies*, 37, 823-837.
- Wang, X., Xiao, H., Chen, K., & Niu, X. (2020). Why administrative leaders take pro-environmental leadership actions: Evidence from an eco-compensation programme in China. *Environmental Policy and Governance*, 30(6), 385-398.
- Wu, J. S., Font, X., & Liu, J. (2021). The elusive impact of pro-environmental intention on holiday on pro-environmental behaviour at home. *Tourism Management*, 85, 104283.
- Xiang, D., Zhao, T., & Zhang, N. (2022). How can government environmental policy affect the performance of SMEs: Chinese evidence. *Journal of Cleaner Production*, 336, 130308.
- Xiaoyi, Z., Yang, H., Kumar, N., Bhutto, M. H., Kun, W., & Hu, T. (2023). Assessing Chinese textile and apparel industry business sustainability: The role of organization green culture, green dynamic capabilities, and green innovation in relation to environmental orientation and business sustainability. *Sustainability*, 15(11), 8588.
- Xu, X., Cui, X., Zhang, Y., Chen, X., & Li, W. (2023). Carbon neutrality and green technology innovation efficiency in Chinese textile industry. *Journal of Cleaner Production*, 395, 136453.
- Xu, Y., Li, W., & Chi, S. (2021). Altruism, environmental concerns, and pro-environmental behaviors of urban residents: a case study in a typical Chinese city. *Frontiers in Psychology*, 12, 643759.
- Yang, L., Manika, D., & Athanasopoulou, A. (2020). Are they sinners or saints? A multi-level investigation of hypocrisy in organisational and employee pro-environmental behaviours. *Journal of Business Research*, 114, 336-347.
- Zhao, C., & Liang, L. (2023). A study on the influence of environmental responsible leadership on employee pro-environmental behavior. *Frontiers in Environmental Science*, 11, 1251920.

Disclaimer/Publisher's Note: The views, opinions, and data presented in all publications are exclusively those of the individual author(s) and contributor(s) and do not necessarily reflect the position of BRPI or its editorial team. BRPI and the editorial team disclaim any liability for any harm to individuals or property arising from the use of any ideas, methods, instructions, or products mentioned in the content.