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HOW LEADERS PRO-ENVIRONMENTAL ATTITUDE MODERATES BETWEEN ENTREPRENEURIAL LEADERSHIP AND ORGANIZATIONAL PERFORMANCE

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ABSTRACT

This study examines the impact of entrepreneurial leadership on organizational performance through the moderation of leaders' pro-environmental attitude by underpinning social learning theory. Leaders with entrepreneurial qualities and a pro-environmental attitude encourages employees in enhancing the performance of organization. The boundary state of leaders' pro-environmental attitude has been analyzed to determine how ethically, and by adhering to leader qualities, employees may decisively keep the relationship between green entrepreneurial leadership and organizational performance. A quantitative research technique is followed, a deductive approach is used for theory construction. Multilevel data were obtained from 225 employees in different production organizations in Pakistan. Multilevel path analysis (MPlus) was applied to do multi-level analysis. The effect of leaders' pro-environmental attitude on entrepreneurial leadership enhances the performance of organizations.

Keywords: *Entrepreneurial Leadership; Leaders' Pro-environmental Attitude; Organizational Performance*

INTRODUCTION

Today, organizations operate in a dynamic environment characterized by unpredictable political, technological, and economic developments (Iriani et al., 2024). Entrepreneurial leaders are increasingly concentrating on developing a long-term organizational vision, cultivating positive organizational cultures, and motivating employees in order to boost the organization's competitive edge in the face of increasing unpredictability and new challenges in dynamic situations (Alateeg & Alhammadi, 2024). Jakubik (2021) demonstrated that the managerial paradigm of entrepreneurial leadership combines vision, trust, and a caring relationship to encourage individuals to develop philosophical fortitude. A company's entrepreneurial leadership promotes organizational growth and timely goal attainment, which raises individual performance

within the company (Zada et al., 2023). A leader with stronger entrepreneurial leadership skills is associated with an organization's total emotional commitment (Drigas et al., 2023). Companies must comprehend the potential effects of entrepreneurial leadership on their overall performance (Mehmood et al., 2021). Entrepreneurial leadership is the process by which business owners restructure their companies to seize new possibilities and improve their ability to generate the diversity required to operate in a highly volatile market (Oberoi et al., 2021). Amankwah-Amoah et al. (2022) state that entrepreneurs are expected to use innovative or creative approaches, including finding untapped material sources or creating new markets for goods and services, to modernize the design of the manufacturing process. Entrepreneurial leaders must to adopt specific management theories and methods that make it easier to integrate information for use in new activities, goods, and procedures (Heaton et al., 2020). Examining and analyzing how entrepreneurial leadership, and leaders' pro-environmental attitude affect organizational performance requires a deeper understanding of their interactions. The literature review, which demonstrates that there aren't many empirical studies that explain the interdependence of the variables in this study in the context of developing countries, especially Pakistan, provides the justification for carrying out this investigation.

2. LITERATURE AND HYPOTHESES DEVELOPMENT

2.1 Social Learning Theory

According to Bandura's (1977) social learning theory, in order to act on ideas and provide meaningful responses, one must observe, demonstrate, and replicate the strategies employed by others. The friendly learning theory takes into account how human directness and wisdom are impacted by both biological and mental factors. In addition to watching attitudes and actions, learning and advancement happen through the imprint of disciplines and rewards—a process called intervened reinforcing (Brown et al., 2005). The idea is that, aside from conflicts, people look to themselves for moral and spiritual values before learning from leaders and good role models. Regarding social learning theory, Bandura (1977) concurs with operant frivolity and old-style formation. But he emphasizes two main points: a) Acts of intervention take place between improvements and solutions. b) Climate-based observational learning is used to acquire behavior. Thus, the social learning theory (Bandura, 1977), also known as social cognitive learning, serves as the theoretical basis for this review. The premise behind Bandura's theory is that individuals can learn in social situations by watching, imitating, and modeling the actions of others. The social learning theory states that the ability to concentrate on many facets of other people's conduct, such as morality and spiritual character, may develop significantly with the aid of positive role models and method demonstration (Bouckenooghe et al., 2015). Brown and Treviño (2014) expanded Bandura's theory of social learning by examining the implications of positive role models for moral understanding and behavior. This study's main focus was on authority models' spiritual positions. The relationship between entrepreneurial leadership, leaders pro-environmental attitude and organizational performance is the main subject of this study, along with the implications for how employees are encouraged to be skilled and innovative in in enhancing organizational performance. For this work, the Social Learning Theory (Bandura, 1986) is the theoretical underpinning.

2.2 Effect of Entrepreneurial leadership on Organizational Performance

Due to the challenges posed by opening of the global economy in the twenty-first century, corporate environment has focused on entrepreneurial leadership (Brauckmann-Sajkiewicz & Pashiardis, 2022). Executives and small business owners need to be aware of the changes occurring in the global economic environment, claim Chikweche and Bressan (2021). Without a clear vision created by its leadership and bolstered by entrepreneurial endeavors, no company can thrive (Khan, 2023). Business executives, whether directors, CEOs, or operation managers, must understand their own leadership styles, competencies, and talents in addition to their ultimate objectives in order to

accomplish this (Mujtaba, 2023). Leaders have to be bold, creative, and aggressive, and they have to be prepared to take chances when needed (Behie et al., 2023). Organizations with intelligent leaders make the most of their skills and abilities to develop their companies quickly and thrive while gaining a competitive edge and building long-lasting enterprises (Waseel et al., 2024). According to entrepreneurship theory, Mehmood et al. (2021) demonstrated how entrepreneurial leaders' personal talents allow them to see a prosperous future for their companies; they are able to come up with creative ideas and spot chances. However, Pauceanu et al. (2021) claim that the functional competencies of entrepreneurial leaders allow them to encourage and inspire their team members to put more effort into implementing innovation and entrepreneurial activities. By recognizing and seizing opportunities to enhance organizational performance, discover creative solutions to problems, and make effective and efficient use of the organization's resources (Mizrak, 2023). Nguyen et al. (2021) assert that entrepreneurial leadership promotes and aids in the implementation of strategies that cultivate a creative corporate culture.

Entrepreneurial leaders are people who understand themselves and the workplace and take the initiative to seize opportunities to provide value for their businesses, stakeholders, and society at large, according to Raby et al. (2023). Entrepreneurial leadership, according to Awotunde and Aregbeshola (2025), is a hybrid concept that combines initiative, innovation, and risk-taking and sits at the intersection of leadership and entrepreneurship. This perspective aligns with the theoretical framework developed by Klimas et al. (2021) for this leadership style. According to Sawaean and Ali (2020), entrepreneurial leadership is defined by three key areas: (1) innovation, which is encouraging team members to be creative in order to make effective changes and create new products and services that will give business a competitive edge; (2) proactive, which is encouraging people to engage in aggressive and continuous competition with other businesses; and (3) risk-taking, which is willingness to take on responsibility and deal with uncertainty. Empowering people to spot and seize profitable possibilities is the aim of entrepreneurial leadership (Taleb et al., 2024). Taleb et al. (2023) claim that entrepreneurial leadership includes both opportunity recognition, which is related to a person's perception of opportunities, and opportunity exploitation, which is related to taking action. Entrepreneurial leaders convey a clear and inspiring vision for their businesses, which can motivate employees and raise their understanding of their role as an agent of the organization accountable for innovation and future success (Ali et al., 2023). In their theory of entrepreneurial leadership, Gupta et al. (2004) concentrated on the two main obstacles that entrepreneurs must overcome. They argued that the first obstacle is enacting scenarios, as entrepreneurs must create an environment of opportunity in order to restore the current situation. For these reasons, it is especially crucial to comprehend how entrepreneurial leadership affects an organization's success (Nguyen et al., 2021). The majority of early research focused on the process of fostering both internal and external entrepreneurial activity and growth through the experiential learning of individual entrepreneurs (Kozlinska et al., 2023). To learn more about how organizations could engage in entrepreneurial activities to create sustainable entrepreneurship, scholars are currently concentrating more on organizations as collective entities (Brandi & Thomassen, 2021). Researchers are attempting to learn more about organizational performance and entrepreneurial activity. Several prior studies have demonstrated the connection between organizational performance and entrepreneurial leadership (Shiferaw et al., 2023). A range of research techniques, including conceptual, empirical, and meta-analysis, were used to investigate this link (Backhaus & Vogel, 2022). These empirical research effectively proved the direct association between the two variables. According to empirical research, entrepreneurial leadership has a beneficial impact on small and medium-sized businesses' (SMEs) growth (Megawaty et al., 2022). According to Tukiran et al. (2021), entrepreneurial leadership has a favorable effect on the organization's performance. Consequently, it is postulated that:

Hypothesis 1: *"Entrepreneurial leadership is positively linked with organizational Performance".*

2.3 Effect of Leaders Pro-environmental Attitude on Organizational Performance

Leaders' behaviour for the improvement of organizational performance is utmost essential (Olutoye & Asikhia, 2022). Peers and subordinates will not be able to perform successfully if the leader has a bad attitude about them, in contrast to workers whose leaders have positive attitudes toward their subordinates (Streimikiene et al., 2021). The improvement and the development of positive environment in the organization depends upon leader's pro-environmental attitude (Javaid et al., 2023). So it can be argued that progress and prosperity of the organization not only affected by other factors but also affected by the main characteristic that is the attitude of the top management and leader (Lam et al., 2021). As the leader attitude in the organization is in a well grooming way then it is concluded that the performance of the organization will also boost up due to this factor (Wolor et al., 2022). It is observed by Soni (2023) that in different organizations that whenever performance of the organization is enhanced then there is big contribution and role of leader's pro-environmental attitude. Therefore, one could argue that a leader's attitude toward the environment is just as vital as the heart's function in the body (Boeske, 2023). As a result, the hypothesis can be assessed in the following ways:

Hypothesis 2: *"Leaders Pro-environmental Attitude is positively linked with organizational Performance".*

2.4 Leaders Pro-environmental Attitude as a Moderator

Leaders that have shown their position, authority, and status are seen as effective group representatives (Shore & Chung, 2022). Pro-environmental outcomes are the positive change in attitudes, concerns, management choices, and behavior intentions achieved from the organizational experience (Composto et al., 2023). Therefore, if they consistently and responsibly embrace green behaviors, exhibit natural administration, and teach green methodologies, they show their representatives that the company values and expects these behaviors (Liu et al., 2023). Organizational leaders aim to inspire subordinates and handle difficult situations without feeling overwhelmed (Dennerlein & Kirkman, 2022). Lee and Weder (2021) assert that the transmission of LPEA from the workplace to the local lifecycle is significantly influenced by working conditions. Individuals who are influenced to adopt environmentally safe practices are adhering to leaders' pro0environmental attitude and are concerned about ecologically friendly conditions (Patwary et al., 2023). Consequently, the hypothesis can be evaluated in this way:

Hypothesis 3: *"The leaders' pro-environmental attitude moderates the relationship between entrepreneurial leadership and organizational performance."*

The Figure 1 illustrates the hypothesized farmwork.

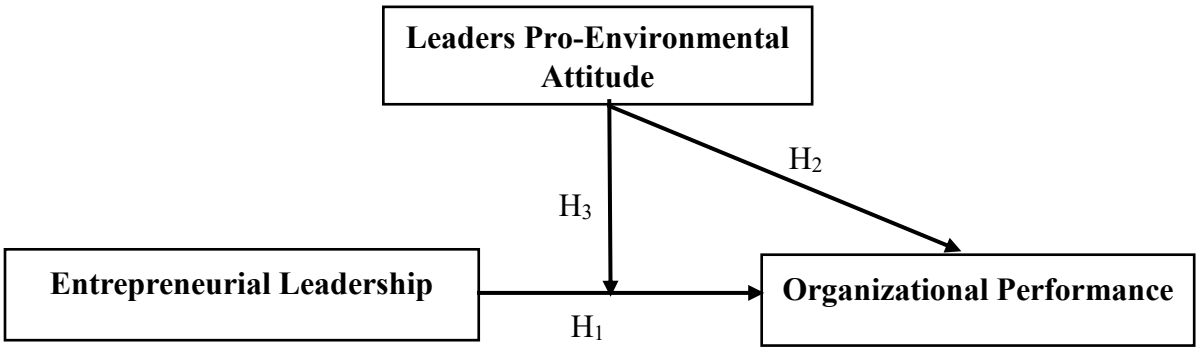

Figure I: Hypothesized Model

3. RESEARCH METHODOLOGY

3.1 Research Design

Using primary data gathered via questionnaire surveys, the quantitative technique was used. The random sampling approach is employed. Longitudinal data from a sample of 225 site engineers, male and female, working in different production organizations in Pakistan, were collected and analyzed. Multilevel Path analysis have been applied as data analysis methods as previously this analysis technique was implemented by saleem et al. (2021) and Hussain et al. (2023) technique was . Males made over 70% of the 225 responders. Respondents had an average age of 45 and a minimum age of 25. The responders had completed at least four projects on average, with an average of 6.7 years of experience.

3.2 Instrumentation

Responses were gathered via a self-report, closed-ended questionnaire. The questionnaire's first section inquired about the respondent's demographics, while its second section focused on the variables in the suggested model. Every item on the scale, with the exception of the respondents' personal data, was assessed on a five-point Likert scale, where one represented "strongly disagree" and five represented "strongly agree." Renko et al. (2015) provided eight components that comprised entrepreneurial leadership scale. The leaders' pro-environmental attitude were measured using fifteen questions that were modified from Dunlap & Liere (1978) and Dunlap et al. (2000). Similarly, organizational performance was evaluated using a five-item scale that was adapted from Ximenes et al. (2019).

3.3. Common method bias

Several strategies are employed to lessen the potential for common method bias. First, the respondents' confidentiality and anonymity are guaranteed. Furthermore, it is not permitted to include personal identifiable information in the questionnaire. Additionally, the consent of the respondents is asked before to conducting the survey. By doing these actions, social desirability bias was lessened. Second, the dependent and independent variables are positioned differently in the questionnaire since close placement of the variables could raise questions for the respondents by giving them a shared background. According to Podsakoff et al. (2003), the link between the two may therefore be skewed. Thirdly, the single factor test developed by Harman was also applied. Statistical experts claim that the single element in the unroasted solution only accounted for 24.9% of the allowable variation, which is less than 50%. Common technique bias was therefore less likely to happen.

3.4. Data analysis and results

Confirmatory factor analysis was used to validate the scale. Confirmatory factor analysis (CFA) was performed using MPlus 8.0, since Hussain and Afzal (2023) likewise adopted and used MPlus 8.0 for data analysis and obtained useful results. The acceptable model fit indices derived from the CFA results are shown in Table 1.

3.5. Reliability and validity

Cronbach Alpha values and Composite Reliability were used to evaluate the scales' dependability. According to the findings, both reliability measures' values exceeded the 0.70 cutoff value (Hair et al., 2019). Similarly, convergent validity and AVE values were used to evaluate validity. All observed variables were successfully completely loaded (having regression weights larger than 0.70) into their corresponding latent constructs for convergent validity. All variables' AVEs were also higher than the suggested cut-off value of 0.5. Sekaran and Bougie (2016) defined reliability as an internal consistency of measuring variables. Table 1 displays the findings of validity and reliability analyses. Lastly, the discriminant validity was evaluated using the standards outlined by Fornell and Larcker (1981). It was determined that all latent constructs in the suggested model had AVE values that were higher than the square of all correlations (shared variances) in the correlation matrix. Discriminant validity was therefore not a problem to report. Table 1 displays the latent constructs' discriminant validity and correlation.

Table 1
Validity and Composite Reliability of Study Variables

	Items	Alpha Value	CR	AVE	Factor Loadings
Entrepreneurial Leadership	8	0.891	0.871	0.699	0.869
LPEA	15	0.876	0.901	0.867	0.907
Organizational Performance	5	0.913	0.797	0.803	0.893

3.6. Descriptive Statistics

Table 2 displays the study's descriptive statistics and control factors. The data dispersion and central tendency are shown by the mean and standard deviation. Kurtosis and skewness are additional metrics for determining normalcy. Mean values for entrepreneurial leadership, leaders' pro-environmental attitude and Organizational performance are as follows: 4.89, 5.86 and 5.99. Organizational performance appears to have a higher mean value than other variables, indicating a greater awareness of the performance of organization among the participants.

Table 2
Correlation matrix between studied variables

Variable	Mean	SD	Skew	Kur
Entrepreneurial leadership	4.89	0.98	-1.81	1.34
LPEA	5.86	1.87	-1.47	1.38
Organizational Performance	5.99	0.91	-1.74	2.01

SD = Standard Deviation, LPEA = Leaders Pro-environmental attitude, ** $p < 0.01$, Skew stands for Skewness, Kur is Kurtosis.

There is minimal data dispersion and all of the variables' standard deviation values fall inside the range. Skewness and Kurtosis values ranged from +2.58 to -2.58 due to the variables' normalcy.

3.7. Sample adequacy test

The Kaiser-Meyer-Olkin (KMO) test was created to assess the veracity of the data being examined. KMO assesses each construct's and the example's completeness. KMO values show the amount of variation that can be referred to as common variance between buildings. A faster rate of change indicates insufficient information. The range of test values is 0 to 1. Sample adequacy is indicated by values between 0.80 and 1, inadequacy is indicated by values less than 0.60, while unexpected issues with the study are suggested by values close to zero. Sample adequacy is indicated by values between 0.80 and 1; when the value is 0.60 or less than 0.60, sample adequacy cannot be determined. According to Cerny and Kaiser (1977) and Kaiser (1974), figures or values that are extremely close to (0) zero indicate additional issues with the analysis.This study's reported KMO esteem of 0.776 indicates a suitable sample.

Table 3: Bartlett's Test and the Kaiser-Meyer-Olkin Test

KMO Measuring of Sample Adequacy	0.798
(CSA) Chi-Square Approximation	11585.79
(DF) Degree of Freedom	763
Significance	0.00

3.8. Hypotheses Testing

Table 4: Summary of Direct and indirect Effects

	Coefficient	Sig.	BC 95% CI	
			Lower	Upper
EL →OP	0.27*	0.00	0.03	0.47
LPEA →OP	0.23*	0.00	0.02	0.37
EL*LPEA -> OP	0.39	0.00	0.28	0.48

Notes: Sig. = Significance, CI = Confidence Interval, EL = Entrepreneurial Leadership,OP = Organizational Performance, LPEA = Leaders Pro-environmental attitude,
*p < 0.01,**p < 0.05

Table 4 shows the direct and indirect effects. Organizational performance is found to be impacted by entrepreneurial leadership. The results demonstrated that Organizational Performance was positively and statistically significantly impacted by Entrepreneurial Leadership at 0.27 (95% CI [0.03, 0.47]). Organizational performance thus rises by 0.27 units for every unit increase in entrepreneurial leadership. According to the study's first hypothesis, entrepreneurial leadership improves organizational performance. Additionally, a statistically significant and favorable correlation between organizational performance and entrepreneurial leadership was demonstrated by the studies. Therefore, the first hypothesis is adopted. Additionally, research confirmed that LPEA had a beneficial and statistically significant impact on OP (0.23, 95% confidence interval [0.02, 0.37]). Consequently, OP increases by 0.23 units for every unit increase in LPEA. Thus, it is also accepted that LPEA improves organizational performance. Table 4 shows the moderating effect of leaders' pro-environmental attitudes between EL and OP. The effect of LPEA on EL and OP was found to be favorable and statistically significant at 0.39 (95% confidence interval [0.28, 0.48]) based on the moderating influence. According to Table 4, EL directly affected OP by 0.27 (95% confidence interval [0.03, 0.47]). Therefore, the moderating impact of LPEA increased this by 0.12 units. As a result, Hypothesis 3 is acceptable.

4. DISCUSSION

In order to explore the connection between entrepreneurial leadership and organizational performance, the current study used leaders' pro-environmental attitudes. The study also looked at how leaders' pro-environmental views might affect organizational performance relationships. The use of entrepreneurial leadership in the workplace has increased its significance because it fosters innovation, which gives employees of companies that adhere to their core values and are also prepared to offer the advantages of caution and moving mortality affirmation, appreciation, and commendable motivation. Extra insight, the capacity to understand business failure, a strong sense of ambition, intellectual stimulation, the capacity for fast decision-making, a positive outlook, and characteristics like a proactive personality that moderate the process of entrepreneurial leadership are some characteristics of entrepreneurial leaders. "Knowledge" of particular leadership and entrepreneurship-related issues is not producing a coherent conceptualization of entrepreneurial leadership (Bagheri & Harrison, 2020).

Entrepreneurial leaders create innovative ideas by exchanging their knowledge. It illustrates how an organization's culture of sharing knowledge encourages innovation by utilizing state-of-the-art techniques and information (Qasim et al., 2025). These results are in line with those of Tukiran et al. (2021), who found that entrepreneurial leadership enhances organizational performance after examining the relationship between the two.

Leaders' pro-environmental attitudes are enhanced when the appropriate ideas are arranged at the appropriate times; this is a helpful tool for comprehending the results of organizational performance (Zafar et al., 2025). Furthermore, fostering an environment that benefits individuals and taking advantage of the chance to practice entrepreneurial leadership with subordinates and superiors (Fayez et al., 2025). Mehmood et al. (2021) state that the results align with the ability, motivation, and opportunity theory, which asserts that employees' support for legitimate innovation, entrepreneurial leadership, and mindfulness can all improve people's aptitude. Leaders' pro-environmental stance can increase energy, it can improve organizational performance and focus, and design can motivate staff to develop fresh, advantageous green ideas (Farrukh et al., 2022). The results show that LPEA acts as a mediator between organizational performance and entrepreneurial leadership. The study's findings, according to Kuenzi et al. (2020), are critical to the continuous exchange of knowledge since they state that administration is an essential and significant prerequisite for a leadership environment. The beneficial relationship between entrepreneurial leadership and the spread of leaders' pro-environmental attitudes has not been extensively studied by academics. As a result, the research findings are acknowledged and supported by the study.

4.1. Research Implications

The many ramifications of entrepreneurial leadership, such as how employees could be encouraged to implement novel concepts by taking chances, have been explained by researchers. The pro-environmental views of leaders are linked to the study on entrepreneurial leadership and organizational success. This study supports previous research's conclusions that entrepreneurial leadership can significantly improve organizational performance. Additionally, this study discovered that entrepreneurial leadership in a cooperative setting can increase the impact of a leader's pro-environmental stance to improve organizational performance. In management, increasing employee creativity, high-performance work methods, and entrepreneurial leadership are all essential to improving an organization's success. These findings are related to a recent study by Lee et al. (2023), which discovered that entrepreneurial leaders have a distinct vision and mission, have exclusive demands on the association's management, and have a warmth and affection for representatives that affects the services that employees provide to their specific organizations. The study's findings confirm Pauceanu et al. (2021) assertion that entrepreneurial leaders alter social traits and that empowerment seems to be more beneficial in creating a respectable workplace in boosting organizational performance. Entrepreneurial leaders are also very concerned about publicly and privately expressing their pro-environmental attitude in order to enhance organizational performance (Abbas et al., 2021).

4.1.1 Theoretical Implications

Academically, this study confirms the results of previous research showing that entrepreneurial leadership can significantly improve organizational performance. Additionally, this study found that entrepreneurial leadership in Pakistani firms can improve leaders' pro-environmental attitudes and organizational performance. To improve organizational performance in Pakistan, management must adopt more pro-environmental and entrepreneurial leadership. By examining the relationships between entrepreneurial leadership, leaders' pro-environmental attitudes, and organizational performance, the study adds to the body of previous work. By offering observational data on the effect of a leader's pro-environmental attitude on organizational performance, the current review adds to the body of research on entrepreneurial leadership (Abbas & Al Hasnawi, 2021).

4.1.2 Practical Implications

Managers and owners in various Pakistani organizations can benefit greatly from the current study's findings. The results showed that pro-environmental attitudes and entrepreneurial leadership are important factors in determining how well an organization performs. For example,

organizational performance is greatly impacted by a leader's pro-environmental stance, which improves organizational performance. According to this research, managers and owners of the sector or company should concentrate on developing their entrepreneurial leadership skills since these skills are crucial for improving organizational performance and capacities (Bhatti et al., 2020). Therefore, managers in Pakistan's SMEs can benefit from the study's conclusions. Since pro-environmental attitudes and entrepreneurial leadership traits have a significant impact on improving organizational performance and capacities, managers and owners are urged to concentrate on them (Shah et al., 2023). Since entrepreneurial orientation is a key component that improves organizational performance, the results of recent research advise SME owners to focus on it. Compared to organizations that prioritize entrepreneurial orientation, those that disregard the execution of entrepreneurial leadership experience higher performance problems. The relationship between organizational resources and performance is greatly improved by leaders that have a pro-environmental mindset (Patwary et al., 2023).

4.2 Limitations and Future Directions

Because this study was limited to cooperatives, its findings cannot be extended to other groups. This research paradigm still has to be carefully evaluated in order to obtain more trustworthy results. The researcher must also expand this model by adding many other relevant elements in order to develop a more complex and useful research model for addressing organizational difficulties.

Conclusion

The analysis demonstrates the high degree of accuracy of the research model. The study's findings demonstrate that organizational performance is significantly enhanced by entrepreneurial leadership. Organizational performance can be increased by making improvements through leader's pro-environmental attitude. This study's findings were able to support those of earlier research, specifically (Nguyen et al., 2021; Imran & Aldaas, 2020). These findings confirm a number of previous research findings which revealed that entrepreneurial leadership had a significantly positive effect on organizational performance, Sawaean and Ali (2020); Tukiran et al. (2021); Sawaean and Ali (2020). In another part, entrepreneurial leadership has a significant positive effect on organizational performance. The results also found that leaders pro-environmental attitude acts as a moderator in the relationship of entrepreneurial leaderships with organizational performance, meaning that entrepreneurial leadership can improve the relationship between leader's pro-environmental attitude and organizational performance. So, entrepreneurial leadership acts as independently on organizational with the help of moderating variable leader's pro-environmental attitude. That is, leader's pro-environmental attitude can strengthen the entrepreneurial leadership and organizational performance.

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