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Research Article

ROLE OF GREEN VISION IN THE RELATIONSHIP BETWEEN GREEN LEADERSHIP AND EMPLOYEES' GREEN SERVICE DELIVERY: A MEDIATING-MODERATING ANALYSIS

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Abstract

The objective of this study is to investigate the effect of green leadership on employees' green service delivery (EGSD) through mediation of green shared vision and moderation of green values in educational sector of Pakistan. Regression and Path analysis were used to estimate the primary data collected from 805 University employees through a structured questionnaire survey. The findings reveal that green leadership has significant relationship with EGSD. Similarly, green shared vision also has significant mediating impact on the association between green leadership and EGSD whereas green values moderate the link between green leadership, green shares vision and EGSD. When we measure unique impact of variables, we found that green leadership and green visions are more strong predictors of EGSD than green values. The findings support the study's theoretical framework and provide new insight into the direct and indirect relationship between explanatory, mediation, moderation variables and EGSD. In this way, the study bridges the gap existing in the current literature regarding the combined effect of green leadership, green shared vision, green values on EGSD.

Key words: Employee green service delivery; Green shared vision; Green leadership; Green values.

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1.Introduction

Business organizations have been facing severe pressure from the consumers and the regulators to produce green products, recycled used products and adopt ecological practices to reduce environmental footprints (Awwad, Anouze, Elbanna (2026). Now various practices to cut waste and resort recycling are being used globally to save natural resources and protect environment (Al-Ababneh et al., 2022). Latest studies reveal that coordinated strategies are followed to improve employees' engagements in sustainable activities (Aisha & John, 2024). Some research studies emphasize that values related to ecological improvement should be evolved through effective use of organizational resources. Some scholars identified that green human practices boost employees' morale and their interest in jobs (Bhatti et al., 2021; Ali Ababneh et al., 2021; Aisha & John, 2024). This is the reason that green human resources management (GHRM) has emerged as an important driver of sustainable growth because it promotes a culture that confronts polluting activities Awan, 2013; (Ercantan, 2022).Business organizations are arranging training programs to generate awareness among their employees about harmful effects of pollution and benefits of quality of environment. The ultimate goals are to achieve sustainable development as proposed Sustainable Development Goals (SDGs) (Afsar, 2020; Li et al., 2023).

1.1 Employee Green Service Delivery (EGSD)

The organizations want to build capability of the employees' green service delivery to improve their performance and prevent harmful impacts of environment without compromising customer satisfaction. Effective green service delivery leads to generate positive words of mouth (Hart et al., 1990; Huang et al., 2020; Iftikhar, 2021). Mostly previous research studies have investigated employees' behaviors and its impact on organizational performance (Wirtenberg, 2007; Kee-hung, 2010; Luu, 2018; Umrani et al., 2020; Al-Ababneh et al., 2022), ignoring to investigate the impact of green leadership on employees' green service delivery through the lens of green shared vision and green values. This study bridges this gap and produces new

knowledge through mediation-moderation analysis to examine the capability of employees' green service delivery.

1.2 Green Leadership

There is extensive research on the link between employees' delivery service, but there are very few studies on the relationship between green leadership and employees' green service delivery. Green leadership plays a crucial role in improving environmental knowledge which leads to improvement of sustainable performance of organizations Rizwan et al. (2023). In these studies, the key driver of sustainable practices is knowledge sharing. The scholars such as May et al. 2003; Awan, 2014; Özgül and Zehir (2023), environmental orientation does not act as a mediator in the relationship between green leadership and employees' green service delivery. Many studies provide insights into the role of leadership in organizational success, but they ignore the link between leadership and employees green service delivery through the lens of green shared vision and green values. The current study fills this void in literature.

1.3 Green Shared Vision (GSV)

Sharing ecological vision among employees plays a significant role in generating awareness and motivating them to follow green practices and adopt green values to achieve sustainability (Chen, 2014; Hu, 2022; Latif et al., 2022). Such vision enhances collaboration and motivation to collectively make efforts to implement green programs (Wiradirja, 2020; Bern, 1972; Chen, 2015). A green vision, along with green training and seriousness about ecological negative impacts improve green behavior of employees (Al-Ababneh et al., 2022; Aghaei, Aghaee, & Shahriari, 2024). However, none of these studies explores the mediating role of green shared vision between green leadership and EGSD in the education sector of Pakistan.

1.4 Green Values

Cultural forces influence the beliefs about environmental responsibility, and this is demonstrated by micro-level behaviors that either support or create barriers in the way of sustainability (Chang et al., 2019; Nguyen, 2020). When such values are followed by employees, these organizations achieve sustainable competitive advantage. Awan, (2016) & Ahmed et al. (2023) suggest that green values enhance

the linkage between GHRM and pro-ecological behaviors. But it is still unknown how these values moderate between Green Leadership and employee green service delivery in Pakistan. The current study is intended to analyze this moderating relationship and create knowledge of how green values moderate the relationship between green leadership and employees' ecological behavior while dealing with the customers. Hence, the main questions of this research are as follows:

RQ1: What is the impact of green leadership on employees' green service delivery (EGSD) in service-oriented organizations?

RQ2: Does green shared vision mediate the link between green leadership and EGSD?

RQ3: Do employees' green values moderate link between green leadership and EGSD?

These questions extend the application of the theories of Transformational Leadership, Strategic Vision, and Value-based view to EGSD. The corresponding objectives are:

- To explore the direct effect of green leadership on Employee Green service delivery (EGSP) in higher education institutions in Pakistan.
- To examine the mediating role of green shared vision in the linkage between green leadership and EGSD.
- To investigate the moderating role of green values in the linkage between green leadership and EGSD.
- To extend and integrate theoretical framework based on *Transformational Leadership* Theory, *Strategic Vision Theory* and *Value-Belief-Norms Theory* in the new context of environmentally focused employees' service delivery.

This study makes valuable contributions to leadership literature. Firstly, the *Transformational Leadership Theory* is developed to predict pro-environmental employee behavior. Second, it provides empirical evidence for strategic vision theory on how a collectively held green vision mediates the transmission of leadership influence to EGSD. Third, it adds to VBN Theory by demonstrating how green values moderate the association between green leadership and employees' behavior. Fourth, this study tests the effects of green leadership on ESSD empirically in education

sector of Pakistan. Fifth, it collectively investigates the mediating role of green shared vision and the moderating role of green values in the relationship between green leadership and EGSD. Sixth, it provides practical guidance for university leaders: articulate a clear green vision, recruit employees with strong green values, and model sustainable leadership to improve customer- and eco-friendly employee service delivery. Thus, this study intends to produce new knowledge on the direct and indirect relationship between green leadership, green shared vision, green values and green service delivery to enable the stakeholders of business firms to incorporate new insights into their green planning and green strategies.

The remainder of this document is structured as follows: In Section 2, the literature is reviewed, research needs are identified, and the study's contribution is outlined. Section 3 provides an explanation of the technique, variables, sample, tools, and analysis. Section 4 presents empirical results, while Section 5 discusses the main findings, practical implications, managerial implications, limitations, and direction for future research.

2. Theoretical Framework and Hypotheses Development

2.1 Theoretical Foundation

This study, based on the Transformational Leadership Theory (Bass, 1985) and the Value–Belief–Norm (VBN) Theory (Stern, 2000), offers an integrated perspective to understand the influence of green leadership on Employee Green service Delivery (EGSD). Transformational Leadership Theory proposes that leaders, who articulate a compelling vision, build commitment, and motivate proactive problem-solving, create behaviors consistent with group goals. When ecological concerns are infused into that vision, leadership becomes "green": it foregrounds environmental responsibility and embeds sustainability into the quotidian life of the organization.

VBN Theory posits that pro-environmental attitude is jointly determined by personal values, ecological beliefs, and moral obligations. Thus, employees with high green values are likely to translate green leadership into green performance, which is the mechanism through which green values are expected to mediate the green leadership-EGSP relationship. This translation is further influenced by Strategic Vision Theory (Nanus, 1992) which underscores the binding force of a clear future state. In

the current model, a role of a green shared vision as a moderator is proposed. It is expected to strengthen (or weaken) the link between green leadership and EGSP depending on the extent to which that vision is shared throughout the organization. It does so by providing clarity of purpose, coordinating effort and reinforcing collective environmental commitment. These three theories together form the basis for empirical analysis.

2.2 Knowledge Gap

Though leadership theories have been broadly used to Employee service delivery, green leadership is still empirically unexplored, especially in Pakistani universities. Previous research emphasizes the importance of green leadership to enhance sustainability through knowledge sharing and environmental orientation, but it fails to analyze EGSD, an important but neglected aspect of the environmentally responsible service provision. Similarly, although scholars have recognized the importance of green shared vision and green values separately, no study has simultaneously considered the former as mediator and later as moderator in the green leadership–EGSD nexus. The present research fills this gap by developing a coherent model that relates green leadership to EGP, explicitly considering the moderating role of green shared vision and the mediating role of employee green values. This study also grounds this model in the data from the front-line universities of Pakistan and provides a refined theoretical account of green leadership outcomes and practical guidance to promote environmentally responsive employee behaviors in emerging economies like Pakistan. In this way, it has produced new insights into how leadership and its green vision and organizational values affect the employees' green service delivery.

2.3 Hypothesis Development

In the light of reviewed, the following hypotheses are suggested:

H1: Green leadership positively influences Employee Green Service Delivery.

H2: Green shared vision mediates the relations between green leadership and Employee Green Service Delivery.

H3: Green values moderate the association between green leadership, green values, and Employee Green Service Delivery.

2.4 Conceptual Framework

The conceptual model constructed basis of the study's variables is shown in Figure 1.

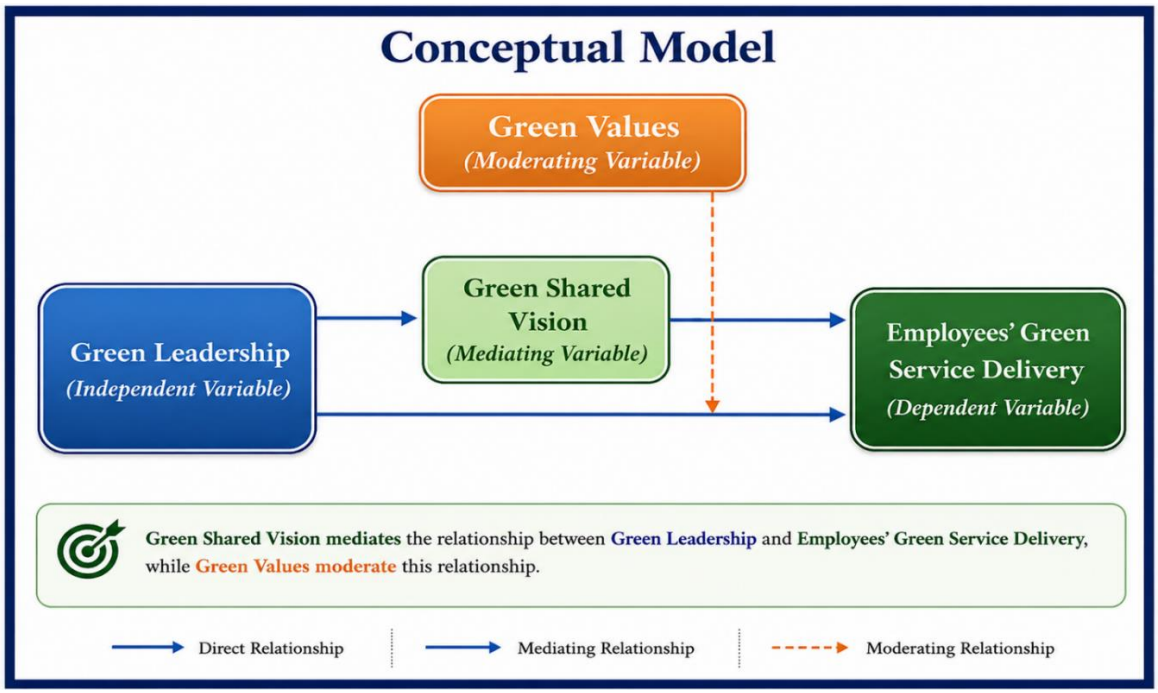

Fig 1: Conceptual Model

3. Material and methods

The objectives of this study are to investigate the direct relationship between green leadership and employees' service delivery, and mediating and moderating association of green shared vision, green values and employees' service delivery. The study used primary data collected from the employees of five universities located in Multan and Bahawalpur cities through field survey questionnaire.

3.1 Selected Variables and Source

The study's variables were selected from established studies included into reviewed literatures. These variables were extensively used by the researchers in their studies.

The names of variables, their types, definition, and sources were mentioned in Figure 2.

3.2 Data Collection Procedure

The study developed a structured questionnaire for collection of data. The questionnaire was divided into two sections: First section consists of demographic information of participants. Various statements relating to variables were constructed to measure the perceptions of participants abound green leadership, green shared vision, green values, and employees green service delivery. Before data collection, participants were briefed about the study objectives and assured that their responses would remain confidential, strictly used for research purposes only. A total of 850 questionnaires were administered, and 805 valid responses were retained after excluding 45 incomplete forms, yielding a response rate of 94.7% (805/850) (Hair et al. (2021). The minimum required sample size was estimated using the A-priori sample size calculator for regression models (Soper, 2023), which suggested a minimum number of 269 respondents; the actual sample size of 805 is roughly three times more than the prescribed criteria (Hair et al. (2021). Reliability and Convergent Validity tests were checked through Cronbach Alpha, while Fornell-Larcker criterion was employed to identify discriminant validity. To detect potential common method bias, Harman's single-factor test was employed to conduct exploratory factor analysis.

3.3 Measurement

Various Statistical methods such as descriptive statistics were used to summarize data characteristics (mean, median, mode, variance, standard deviation) and identify trends and patterns. Analysis of variance (ANOVA) was employed to compare the mean values among several groups to determine significant differences and to evaluate the link between independent and dependent variables. The Regression Analysis has been used to predict the behavior of dependent variable of employee green service delivery with the mediating roles of green shared vision and

moderating green values. The analysis helps to understand these variables, to find patterns within the dataset and to find the strength of relationships between them.

3.4 Study Area and sample

This research was conducted in five universities located in the cities of Multan and Bahawalpur of Pakistan. Four universities were selected including Bahauddin

Zakariya University, NCBA College, Time University and Muhammad Nawaz Sharif University of Agriculture from Multan city and one University, Islamia University of Bahawalpur was selected. The universities were selected for their academic prominence and regional importance. The overall research design of the study is shown in Figure 2.

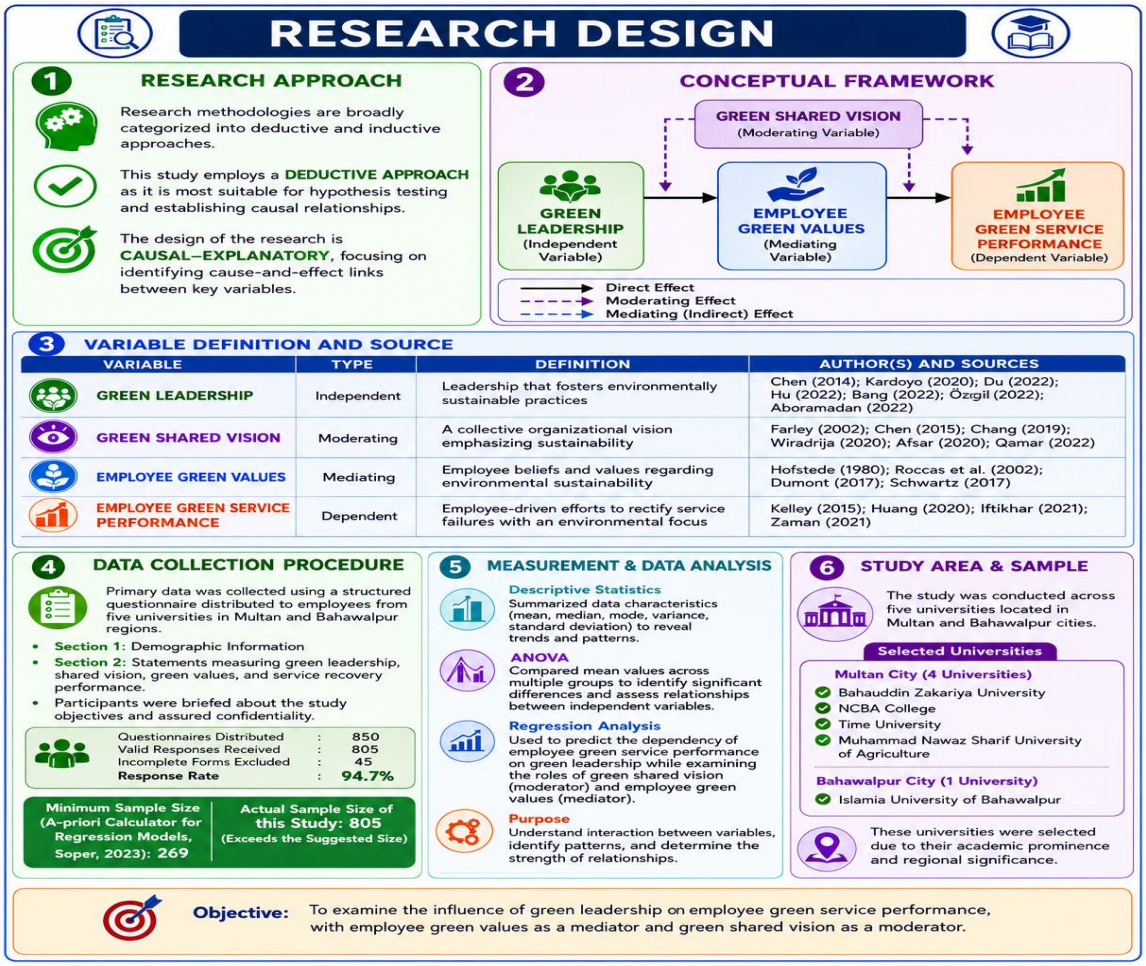

Fig 2: Research Design

4. Results

4.1 Demographic information

The participants' demographic profile shows a good distribution of personal and professional characteristics. By age, most of the participants were in the age group of 31–40 years (81.1%) followed by 41–50 years (11.3%). A smaller proportion, 6.6%, were aged 21–30 and only 1.0% were aged 20 or under. As regard to gender, the sample was male dominated, with 78.8% of the total being male and 21.2% being female, indicating gender disparity in the higher educational institutions of Pakistan. In terms of education, 40.7% of the respondents had a master's degree, 25.2% had an M.Phil., and 34.1% had a Ph.D. Therefore, the group was highly qualified on average. In terms of working experience, 44.7% of the participants had 11 to 15 years of working experience, which was the highest percentage. Moreover, 33.8% had experience of 6 to 10 years and 21.5% up to 5 years. The demographics indicate that the participants were mature, highly educated and professionally experienced, but the skew of the sample towards one gender and one age band restricts the extent to which these findings can be extrapolated (see Limitations, Section 5.7).

4.2 Reliability and Validity Assessment

Before testing the structural model, the reliability and validity of the measurement scales were examined through Cronbach's alpha. Table 1 presents the findings of Cronbach Alpha test.

Table 1: Reliability and Convergent Validity outcomes

Construct	Cronbach's Alpha	Composite Reliability (CR)	AVE
Green Leadership	0.912	0.931	0.694
Green Shared Vision	0.904	0.926	0.676
Employee Green Values	0.918	0.937	0.714
Employee Green Performance	0.927	0.944	0.739

Source: Author owns calculations.

According to the results shown in **Table 2**, Cronbach's alpha values lie between 0.904 and 0.927, exceeding the recommended threshold of 0.70 (Hair et al., 2022), thereby confirming satisfactory internal consistency. Likewise, Composite reliability values lie between 0.926 and 0.944, exhibit excellent construct reliability. The AVE values varied between 0.676 and 0.739, exceeding the prescribed limit of 0.50, hence, confirming convergent validity.

4.3 Correlation Analysis

Table 2: Correlation Matrix Results

Variable	Mean	SD	GL	GSV	EGV	EGP
Green Leadership (GL)	3.68	0.84	1.000			
Green Shared Vision (GSV)	3.64	0.84	0.612*	1.000		
Employee Green Values (EGV)	3.54	0.87	0.573*	0.548*	1.000	
Employee Green Performance (EGP)	3.73	0.82	0.756*	0.659*	0.483*	1.000

*$p < 0.001$ **Source:** Author owns calculations using SPSS Software.

Correlation analysis indicated significant positive links among all variables. Green Leadership exhibited the strongest association with Employees' Green service delivery ($r = 0.756$, $p < 0.001$), followed by Green Shared Vision ($r = 0.659$, $p < 0.001$). Employee Green Values also exhibited a significant positive association with Employees' Green service recovery ($r = 0.483$, $p < 0.001$). None of the correlations exceeded the recommended limit of 0.85, implying that multicollinearity was not a concern in the model.

4.4 Discriminant Validity

The criteria of Fornell-Larcker were used to check discriminant validity. The findings of this criterion are presented in Table 3.

Table 3: Fornell-Larcker Criterion

Construct	GL	GSV	GV	EGP
Green Leadership (GL)	**0.833**			
Green Shared Vision (GSV)	0.612	**0.822**		
Employee Green Values (EGV)	0.573	0.548	**0.845**	
Employee Green Performance (EGP)	0.756	0.659	0.483	**0.860**

Diagonal values (bold) show the square root of AVE.

Source: Author owns calculations

The square root of the AVE for each construct is higher than its correlations with other constructs. This finding satisfies the Fornell-Larcker criterion. Therefore, discriminant validity is established.

4..5. Common Method Bias (CMB)

To examine the common method bias issue, Harman's single-factor test was performed using exploratory factor analysis. The findings of analysis are presented in Table 4.

Table 4. Harman's Single-Factor Test outcomes

Component	Eigenvalue	Variance Explained (%)
First Factor	7.34	32.48

Source: Author owns calculations

The first unrotated factor illustrated 32.48% of the total variance, which is much lower than the suggested criterion of 50%, as Table 7 demonstrates. Consequently, it is unlikely that common method bias will be a serious issue in this investigation. According to Harman's suggestion, the majority of the covariance between the measurement items cannot be established by a single factor. Therefore, the validity of the study's conclusions is established because there is no threat of common technique variance.

4.6 Regression Analysis

4.6.1 Direct Effect of Green Leadership on Employees' Green Performance

We constructed a model to identify the direct link between green leadership and employees' green service delivery (EGSD). The findings of the analysis are presented in Table 5.

Table 5: Regression Analysis outcomes

Model 1	**Unstandardized Coefficients (B)**	**Standardized Coefficients (Beta)**	**t**	**Sig.**
Constant	4.810	–	5.835	0.000
Green Leadership (GL)	0.866	0.796	15.773	0.000

Model Summary: R = 0.756, R^2 = 0.571, Adjusted R^2 = 0.570, F = 7.234, Sig. = 0.000 *Dependent variable: Employees' Green service Performance (EGP)*

Source: Author owns calculations using SPSS software.

The regression analysis results show a strong and statistically significant positive link between green leadership and EGSD. The unstandardized coefficient (B = 0.866) suggests that a one unit increase in green leadership is associated with 0.866 units increase in EFSD. The standardized beta coefficient (β = 0.796) further emphasizes the strong impact of green leadership. An R^2 of 0.571 means that green leadership explains 57.1% of the variance in EGSD, demonstrating strong explanatory power of the model. Hence, **H1** is supported.

4.6.2 Mediating Analysis-Role of green shared vision (GSV)

The analysis tests **H2**: whether green shared vision (GSV) mediates the link between green leadership and EGSD. The findings are summarized in Table 6

Table 6: Bootstrapped Mediation Analysis results

Effect	**β**	**Boot SE**	**95% LLCI**	**95% ULCI**	**p**
Direct Effect	0.428	0.054	0.322	0.534	<0.001
Indirect Effect (GL→GSV→EGSD)	0.387	0.046	0.301	0.481	<0.001
Total Effect	0.815	0.049	0.719	0.911	<0.001

Bootstrap samples = 5,000. Proportion mediated = **47.5%**

Source: Author owns calculations using SPSS Software.

A bias-corrected bootstrap method using 5,000 resamples was used to identify the mediating effect of Green Shared Vision. The indirect effect was statistically significant (β = 0.387, 95% CI [0.301, 0.481]), as the confidence interval excluded zero. Since the direct effect was statistically significant after incorporating the mediating variable. Green Shared Vision partially mediates the association between Green Leadership and Employees' Green service delivery. Hence, **H2** is accepted.

4.6.3 Moderating Analysis- Role of green values (GV)

The analysis tests **H3**: whether employee green values (EGV) moderate the link between green leadership and EGSD. The outcomes are shown in Table 7.

Table 7: Moderating analysis Results

Predictor	**β**	**t**	**p**
Green Leadership	0.796	15.77	<0.001
Green Values	0.483	8.16	<0.001
GL × GV	0.184	4.62	<0.001

R^2 = 0.659. ΔR^2 = 0.041

Source: Author owns calculations using SPSS Software.

The relationship between Green Leadership and Employee Green Values was positive and statistically significant (β = 0.184, p < 0.001), showing that Employee Green Values strengthen the positive association between Green Leadership and Employees' Green service delivery. Hence, **H3** is validated. The direct effect of green leadership on EGSD (β = 0.796) is in line with transformational and ethical leadership theories

(Brown & Treviño, 2006; Aboramadan, 2022; Hu et al., 2022; Du, 2022). The results for GSV and GV are consistent with the Visionary Leadership Theory (Nanus, 1992; Schein, 2010), VBN Theory (Stern, 2000), and previous findings of Awan, 2013: Dumont et al., 2017, Zhou et al., 2018: Punzo et al., 2019; and Chang et al., (2019).

4.7 Structural Path Analysis (PLS-SEM)

Path analysis was performed to examine direct, mediating, and moderating associations between green leadership, green shared vision, green values and EGPD. The coefficient for green leadership is 0.796, implying a one unit change in green leadership is associated with an increase in employees' green service delivery by 79.6 %, suggesting strong impact of green leadership on employees' green service delivery. The coefficient for green vision, which is a mediating variable, is 0.916, suggesting a one unit change in green shared vision is likely to improve employee green service delivery by 91.6%, demonstrating strong impact of shared vision on employees' service delivery. The coefficient for green values, which is a moderating variable, is 0.483, meaning that a one unit change in green values is associated with an increase in employees' green service delivery by 48.3%. This is significant but has a moderate influence. The findings of structural path analysis are presented in Table 8.

Table 8: Outcomes of structural path analysis

Path	**β**	**t**	**p**	**Decision**
GL → EGP	0.796	19.983	<0.001	Supported
GL → GSV	0.612	16.284	<0.001	Supported
GSV → EGSD	0.816	19.930	<0.001	Supported
GV → EGPSD	0.483	8.157	<0.001	Supported
GL×EGV → EGSP	0.184	4.620	<0.001	Supported

Source: Author owns calculations.

The results of Path Analysis are displayed in Figure 3 for further elucidation.

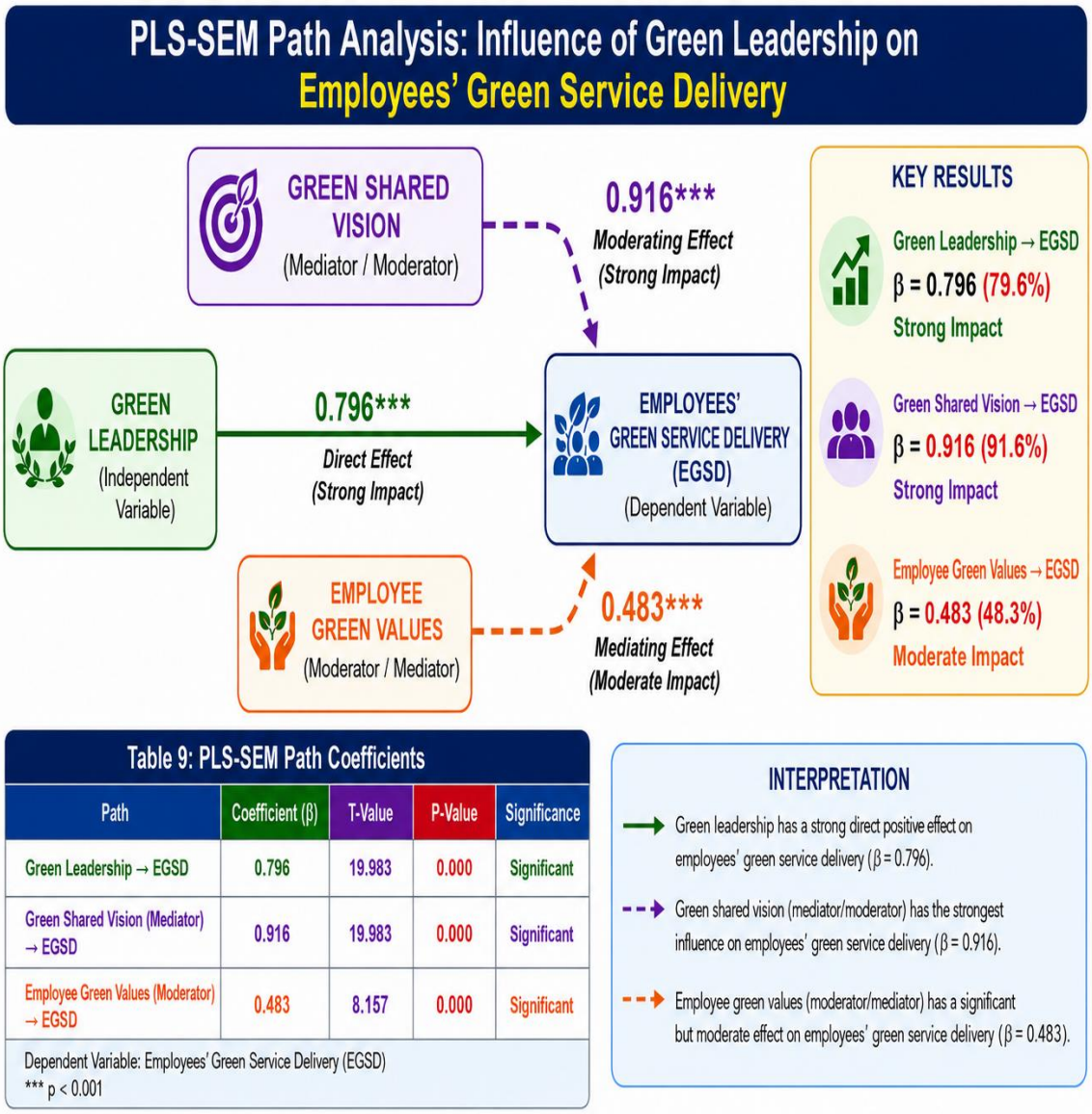

Fig 3: Path analysis results.

4.5 Predictive Power of the Model

Table 9 presents model evaluation metrics for green leadership, GSV, and GV to display the predictive power of the model.

Table 9: Model Evaluation Metrics

Model	R^2	Adjusted R^2	F-statistic	p-value
Green Leadership	0.571	0.570	**1069.10**	0.000
Green Shared Vision	0.659	0.659	**1552.37**	0.000
Green Values	0.382	0.381	**496.62**	0.000

Source: Author owns calculation by SPSS software.

The R^2 values show that green leadership explains 57.1% of the variance in EGSD, demonstrating strong predictive power. GSV accounts for 65.9%, while GV shows 38.2%. Adjusted R^2 values and F-statistics support the reliability and statistical significance of the models. Among the three, green leadership exhibits the strongest predictive power and goodness of fit the model. The individual impact of models is further illustrated in Figure 4.

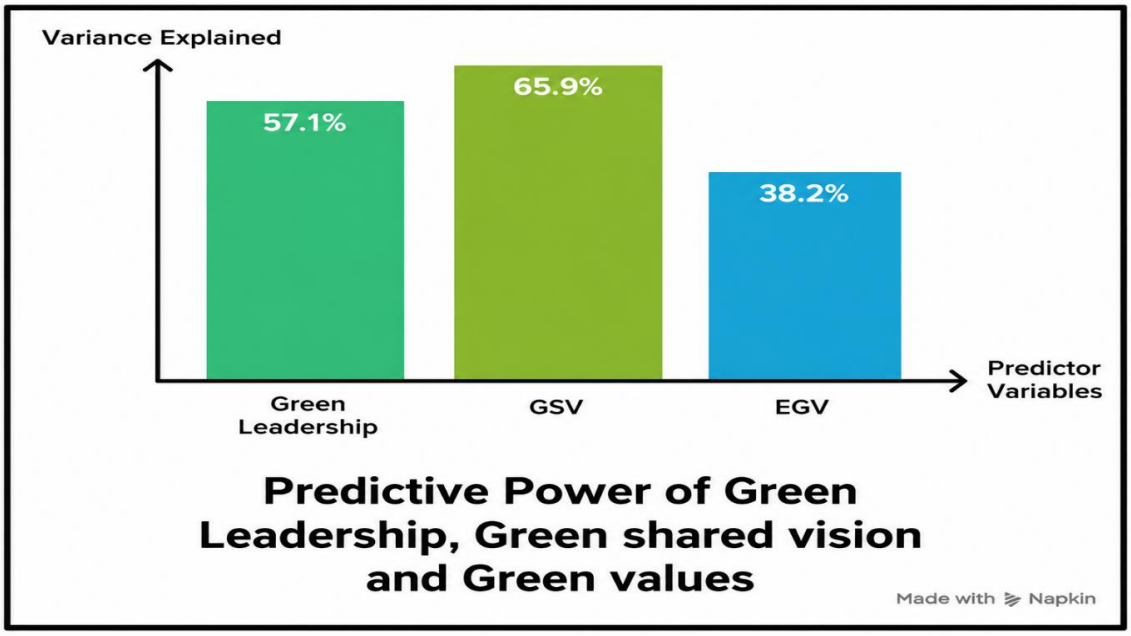

Fig 4: Predictive power of the models

4.7 Homoscedasticity (Residuals vs Fitted) Test

The findings of factor analysis show that the first two components account for 61.69% and 38.31% of the variance which validates the factor structure of the data. Table 10 provides a summary of three diagnostic tests.

Table 10: Diagnostic tests results

Test	Measure	Result	Interpretation
Normality	Shapiro-Wilk (p-value)	0.329	Residuals are normally distributed (p > 0.05)
Multicollinearity	VIF	GSV: 1.00, GV: 1.00	No multicollinearity (VIF < 5)
Homoscedasticity	Residuals vs. Fitted Plot	Randomly scattered	No heteroscedasticity detected

Source: Author owns calculation using E-View software.

The model satisfies key assumptions of normality, multicollinearity, and homoscedasticity. The residuals exhibit random scatter around the mean, confirming consistent variance (homoscedasticity), and ensuring robust and reliable regression outcomes.

5. Discussion

The key findings of this study are discussed below:

5.1 Direct Effect of Leadership

The aim of this study was to examine how employees' green service delivery is affected directly by green leadership, mediated by green shared vision, and moderated by a green value. A questionnaire was developed to gather primary data from 805 participants for this analysis. The dependent variable was Employee green service delivery (EGSD), while the independent variable was green leadership. Green shared visions and green values acted as mediating and moderating variables. The target population was the employees of five universities located in Bahawalpur and Multan cities of Pakistan. The empirical findings confirm that employee green service delivery is positively and statistically significantly impacted by green leadership. There is a substantial positive correlation between these two variables, as indicated by the R-squared value of 0.571, which indicates that green leadership accounts for 57.1% of the variation in employee green service delivery. According to *the transformational and ethical leadership theories,* these results provide empirical support for the claim

that environmentally conscious leadership builds green behavior among employees are reported by Awan & Khalid, 2014;Brown & Treviño,2005; Hu, (2022).

5.2 Mediating effect of green shared vision

The effect of green leadership on EGSD was significantly mediated by green shared vision (GSV) (B = 0.915, β = 0.816, p < 0.001). The mediation model accounted for 65.9% of the variance in EGSD. These results suggest that GSV functions as a motivational process through which green leadership influences employee behavior. This supports the *Visionary Leadership Theory* (Nanus, 1992) and Value-Belief-Norm Theory (Stern, 2000) and further emphasizes the significance of organizational vision alignment in sustainability initiatives. The results also provide empirical support for the findings of Awan & Wamiq, 2016; Chen (2015), Javed Ahmad et al. 2018: Afsar 2020: Ababneh, 202: Al-Ababneh et al. (2022) who found a significant relationship between shared vision and employee green service delivery.

5.3 Moderating effect of green values

Furthermore, employees' green values (GV) were found to moderate the link between green leadership and employee green service delivery (EGSD) (B = 0.493, β = 0.483, t = 8.157, p < 0.001). R 2 = 0.38.2% indicates that the model has moderate explanatory power. These results suggest that employees with higher green values are more committed to green leadership, which boosts productivity. Employee green service delivery and green values were found to be moderately correlated in previous studies on the importance of value congruence in sustainable management practices Awan & Kashif (2014) (Dumont et al., 2017; Zhou et al., 2018; Chang et al., 2019; Tai-Wei, 2020).

5.4 New Theoretical insights

This study adds to the theoretical debate on green leadership by offering a multi-level framework for the integration of direct, mediating and moderating mechanisms. It applies *transformational and ethical leadership theories* to the environmental management context in the service industry. The finding that GSV mediates and GV moderates the relationship between green leadership and employees' green service delivery and adds to the understanding of how leadership promotes sustainability-

oriented behaviors. The findings also provide empirical support for the *Value-Belief-Norm Theory and Visionary Leadership Theory* within the framework of employees' green service delivery. Green leadership can be nurtured by managers who motivate their subordinates to assume responsibility for environmental practices, thereby increasing their sense of accountability toward the ecology and encouraging the employees to participate actively in green initiatives. The findings provide new insights into the behavior of employees with higher green values and their strong commitment with green leadership, which leads to high productivity. Another new insight is that green shares vision functions as a motivational process through which green leadership influences employee behavior. This supports the *Visionary Leadership Theory* (Nanus, 1992) and Value-Belief-Norm Theory (Stern, 2000) and further emphasizes the significance of organizational vision alignment to the UN's sustainable development goals.

5.5 Managerial implications

The results imply that managers may enhance their leadership effectiveness over organizational issues and strengthen green organizational identification. When the environmental mission statement is clearly defined by the leaders, it can motivate them to advocate and practice sustainable environmental practices which can result in a more sustainable culture within the organization. The study emphasizes the significance of a shared green vision in shaping the values of employees. Managers should always communicate environmental objectives to align green values with the organization's ecological goals, leading to an increase in engagement in sustainability efforts. Organizations should promote the shared green vision at all levels to improve the green service delivery.

5.6 Limitations and new ideas for further research

Although the sample size of 805 participants is adequate, it might restrict how the findings can be generalized to other regions. To assess the robustness of the findings, future research should expand this study using bigger and more varied samples in various industries and organizational environments. Additionally, the study's cross-sectional research design limits the capacity to establish causal link between variables. The relationship between green leadership, green shared vision, green values, and

Employees green service delivery can be investigated over time through longitudinal research. The green shared vision and leadership toward environmental sustainability are the primary topics of this study. However, the impact of green leadership may also be influenced by other factors such as the organization's culture, industry regulations, or the general state of the economy. Future studies should examine how these factors affect the green shared vision and, consequently, the green behaviors of employees. Future studies can include more variables such as culture, motivation, and environmental awareness to provide deeper understanding of how green leadership affects sustainability. New researchers can investigate the impact of technological progress and digital transformation on green leadership and shared vision. Qualitative studies may provide richer insights into the mechanisms through which green shared vision influences employee engagement in green practices.

6. Conclusions

This study investigated the impacts of green leadership on employees' green service delivery through the mediating effect of green shared vision and moderating effect of employee green values in the higher education sector of Pakistan. The empirical results demonstrate that green leadership has a significant positive impact on employees' green service performance. Moreover, green shared vision is a key mechanism for leaders to drive environmentally responsible behaviors, and employee green values can improve the effectiveness of green leadership. The study provides empirical evidence for the integration of Transformational Leadership Theory, Strategic Vision Theory and the Value–Belief–Norm Theory in explaining sustainable employee behavior. It also points to the need for environmentally responsible leadership along with a shared organizational vision and strong environmental values among employees to be able to achieve superior environmental performance. In short, the findings suggest that universities should build a collective environmental vision and strengthen employees' green values not only to develop environmentally responsible leaders but to improve sustainability. Collectively, these organizational capabilities can substantially improve employees' green service delivery and facilitate long-term institutional sustainability.

Data Statement: The data that is used in this study will be made available by corresponding author on reasonable requests.

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