Impact of Environmentally Specific Servant Leadership on Energy Specific Pro-Environmental behavior: Moderating role of psychological empowerment

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Abstract

This research delves into the correlation between Environmentally Specific Servant Leadership (ESSL) and Energy Specific Pro-Environmental Behavior (ESPEB) among university teachers in the southern region of KPK, Pakistan. Additionally, it explores the moderating impact of psychological empowerment in this relationship. The primary objective is to uncover the factors influencing teachers' Energy Specific Pro-Environmental Behavior within their organizations, with a focus on the role of psychological empowerment. Employing a quantitative approach, the study employs questionnaire-based data collection methods administered to a sample of university teachers, and the gathered data is subjected to statistical analysis. The results reveal a positive and noteworthy connection between Environmentally Specific Servant Leadership (ESSL) and Energy Specific Pro-Environmental Behavior (ESPEB) among teachers. Furthermore, the study discerns that psychological empowerment significantly moderates this relationship, underscoring the impact of the psychological empowerment context on the association between Environmentally Specific Servant Leadership (ESSL) and Energy Specific Pro-Environmental Behavior (ESPEB). The implications of this study extend to both theoretical and practical realms. The findings underscore the significance of fostering a positive work environment and enhancing the overall quality of teachers' work life. Moreover, the study emphasizes the importance of developing psychological empowerment aligned with teachers' values and needs. By grasping these dynamics, educational institutions can establish an environment conducive to enhancing teacher commitment and bolstering organizational effectiveness.

Keywords: Environmentally Specific Servant Leadership (ESSL) and Energy Specific Pro-Environmental Behavior, psychological empowerment, Teachers, universities of southern region KPK, Pakistan.

Introduction

Organizations globally have initiated diverse pro-environmental initiatives in light of the escalating environmental pollution issue. These initiatives encompass adherence to standardized environmental policies and procedures, compliance with environmental legislation, energy conservation, water consumption reduction, and active participation in recycling efforts, as highlighted by (Zibarras & Coan,2015). Pro-environmental behavior (PEB) goes beyond employees' job expectations, involving their voluntary commitment to safeguarding the natural environment, as emphasized by (Lamm et al,2013). These voluntary actions play a pivotal role in significantly contributing to the environmental performance enhancement of organizations, as underscored by (Blok et al. 2015; Robertson & Carleton ,2017). Initiating proactive efforts is essential, not only for the sake of environmental sustainability but also for the overall prosperity of organizations and the well-being of their employees (Lamm et al, 2015). The adoption of voluntary green behaviors becomes a keystone in aligning with an organization's environmentally and socially responsible values, goals, and beliefs, significantly influencing its success, as highlighted by (Liu et al.2017; Tian & Robertson 2017). According to Mouro and Duarte (2021) Employees play a crucial role in addressing environmental challenges by actively participating in eco-initiatives such as reducing water consumption, conserving energy, and recycling.

In order to guarantee that organizations function in an environmentally sustainable fashion and efficiently utilize human resources for the betterment of our planet, it becomes essential to advocate for pro-environmental behaviours (Zhang yet al,2022). Furthermore, Yuan and Li (2022) observed that individuals in developed nations tend to adopt a more proactive stance in instigating voluntary environmentally friendly behaviors. Recognized globally as urgent issues, environmental challenges such as global warming, pollution, biodiversity loss, natural resource depletion, ozone layer depletion, deforestation, and waste disposal have garnered widespread attention (Jones & Brown,2022; Gupta et al.2023). Among these challenges, climate change is an existential threat confronting the planet. According to the World Economic Forum's Global Risks Report (2021), the top three risks by likelihood include extreme weather, climate action failure, and human environmental damage. The discussion surrounding global environmental challenges consistently concerns the pivotal role of business and human activities

(Garcia et al.,2019). While environmental issues like climate change may arise from natural variations or human activities, the consensus among scientists is that the primary driver of climate change is anthropogenic (Roberson & Barling, 2013). This acknowledgment underscores the need for collective efforts to address and mitigate the adverse impacts of human actions on the environment (Chen et al. 2021).

In light of the undeniable scientific consent on anthropogenic global warming, it becomes imperative to scrutinize the environmental impact of various industries, including the influential hospitality sector. The hospitality industry, a cornerstone of economies worldwide, not only drives employment and economic growth but also leaves a discernible ecological footprint (Brown & Johnson,2021). This impact is characterized by the industry's substantial consumption of natural resources, emission of pollutants, and the generation of significant amounts of solid and liquid waste, as highlighted by (Chaudhary et al.,2020). Recognizing the pivotal impact of individual behaviour on shaping the overall environmental scenario, it becomes crucial to underscore the influence of businesses in shaping consumer preferences and promoting environmentally friendly actions. As Williamson et al. (2018) and Anderson et al. (2020) highlight, initiating positive shifts in human behavior is essential for effectively tackling environmental challenges and advocating for sustainable tourism. Within the hospitality sector, businesses hold a distinctive position with their direct interaction with consumers, offering a unique opportunity to inform, motivate, and promote environmentally conscious decisions among their clientele.

There has been a growing recognition of the critical need for leadership approaches prioritizing environmental sustainability in recent years. Environmentally Specific Servant Leadership (ESSL) has emerged as a noteworthy framework that integrates servant leadership principles with a specific focus on environmental concerns (Al-Rashidi,2023). Servant leadership, as introduced by Greenleaf (1977), emphasizes leaders serving the needs of others and fostering a sense of community. When applied to environmental contexts, ESSL extends this philosophy to address the ecological well-being of the community and the planet. Various studies highlight the significance of integrating environmental stewardship into leadership practices, indicating that conventional leadership models may fall short in addressing the urgent environmental challenges we face (Anderson et al. 2020; Choudhary et al., 2020). Researchers have delved into the

characteristics and behaviors that define ESSL. It involves leaders actively engaging in environmentally responsible practices, demonstrating a commitment to sustainable initiatives, and encouraging followers to adopt eco-friendly behaviors (Ali & Ahmed,2023). The studies of Bai et al. (2021) and Zhao et al. (2023) contribute valuable insights by showcasing the positive influence of ESSL on organizational sustainability performance and environmental responsibility. The inherent connection between servant leadership and environmental consciousness is underlined by the findings of Ayodele and Munda (2019) demonstrating that leaders who prioritize the well-being of their followers are also more likely to prioritize the well-being of the environment.

Additionally, ESSL fosters a culture of environmental responsibility within organizations. The research by Baker, Sparks and Rane, (2020) illustrates how ESSL can create a positive organizational climate that encourages employees to adopt sustainable practices within and outside the workplace. This aligns with the broader understanding that leadership styles impact organizational culture. ESSL contributes to a culture that values ecological sustainability. By incorporating environmental concerns into the fabric of leadership, ESSL addresses immediate environmental challenges and lays the foundation for long-term ecological resilience (Barr,Gilg & Shaw,2019). The impact of ESSL extends beyond organizational boundaries. Scholars like Li and Liu (2019) have explored how leaders practicing ESSL can influence societal attitudes toward environmental sustainability. The findings suggest that leaders who prioritize environmental stewardship inspire followers to engage in pro-environmental behaviors in their personal lives, contributing to a collective effort towards a more sustainable society. ESSL, therefore, catalyzes the promotion of environmental responsibility at both individual and societal levels.

As organizations increasingly recognize the interdependence of their operations with the environment, the role of leadership in driving sustainability initiatives becomes paramount. ESSL, as a specialized form of servant leadership, offers a compelling framework for addressing the unique challenges posed by environmental degradation (Choudhary al,2020). The research conducted by Liang et al, (2020) underscores the practical implications of ESSL, demonstrating its positive correlation with sustainable business practices and integrating environmental considerations into strategic decision-making processes. In conclusion, Environmentally Specific Servant Leadership represents a promising avenue for fostering environmentally conscious

leadership practices. Building upon the foundation of servant leadership, ESSL integrates ecological considerations into its core principles, offering a holistic approach to leadership that aligns with the urgent need for environmental stewardship (Rashid & Ilkhanizadeh, 2022). The studies highlight the relevance and effectiveness of ESSL in promoting organizational sustainability, shaping organizational culture, and influencing broader societal attitudes toward environmental responsibility (Afsar et al., 2018; Luu, 2019).

As organizations strive to navigate an era of heightened environmental consciousness, adopting ESSL emerges as a crucial step toward fostering a harmonious relationship between leadership and the environment (Safari, et al. 2020). While numerous studies have explored pro-environmental behaviors, there is a growing interest in understanding the specific behaviors related to energy conservation and sustainability (Paillé and Francoeur, 2022). Energy-specific pro-environmental behavior refers to actions taken by individuals or organizations to reduce energy consumption and promote energy efficiency. In recent years, researchers have delved into this specific domain to gain insights into the factors influencing such behaviors and the potential impact on overall environmental sustainability (Zientara & Zamojska,2018). In their study Wang and Katzev (2017) investigated the role of social norms in shaping energy-specific pro-environmental behavior. The findings suggested that individuals are more likely to engage in energy-saving activities when they perceive them as socially desirable or normative within their community. This highlights the importance of social influences in promoting positive environmental actions related to energy conservation. In addition to social factors, psychological aspects have been explored in recent research on energy-specific pro-environmental behavior. A study by Steg et al. (2018) focused on the role of psychological distance in influencing energy-saving decisions. The research suggested that individuals prioritize short-term benefits over long-term environmental goals, emphasizing the need for interventions that bridge the psychological gap between immediate rewards and long-term sustainability.

Technology and its impact on energy-specific pro-environmental behavior have been another focal point of recent studies. A study by Lee and Shin (2019) investigated the influence of smart home technologies on energy-saving practices. The results indicated that individuals with access to smart home devices were more likely to adopt energy-efficient behaviors, emphasizing the potential of technology as a facilitator for positive environmental actions. Furthermore,

governmental policies and interventions have been examined in the context of energy-specific pro-environmental behavior. A study by Zhao et al. (2020) analyzed the effectiveness of policy measures in promoting energy conservation at the community level. The research highlighted the need for well-designed and targeted policies to encourage sustainable behaviors, emphasizing the role of government initiatives in shaping a pro-environmental culture (Ying et al., 2020). The impact of environmentally specific servant leadership on energy-specific pro-environmental behavior has emerged as a critical area of research in recent years. As organizations globally grapple with environmental sustainability challenges, leadership styles that foster a commitment to eco-friendly practices have gained prominence (Tuan, 2019). Servant leadership, characterized by a leader's focus on the well-being and development of their team members, has been recognized for its potential to promote pro-environmental behavior within organizations. Scholars have argued that leaders who exhibit environmentally specific servant leadership behaviors may influence employees to adopt sustainable practices in their work, contributing to a more environmentally conscious organizational culture (Schaubroeck et al., 2018; Sendjaya et al., 2019).

In contemporary investigations, the relationship between environmentally specific servant leadership and employees' pro-environmental behavior, particularly in energy conservation. Researchers have found that leaders who prioritize environmental concerns and model eco-friendly behaviors positively influence their followers, encouraging them to engage in energy-saving practices in the workplace (Liden et al., 2020; Stone et al., 2021). This connection between leadership and energy-specific pro-environmental behavior is crucial as organizations seek ways to reduce their carbon footprint and promote sustainable business practices. Psychological empowerment, a concept rooted in social and organizational psychology, has gained prominence in recent research as a crucial factor influencing individuals' well-being and performance in various contexts (Wangm & Katzev,2018). Scholars have increasingly recognized the need to explore the moderating role of psychological empowerment in understanding the complex interplay between individual characteristics and external influences (Mali,Sarwar & Orr, 2021). This study seeks to contribute to this growing body of literature by investigating the moderating effect of psychological empowerment on the relationship between certain variables. Psychological empowerment encompasses feelings of competence, autonomy, and impact, giving individuals a sense of control and influence over their work and life.

Recent studies, such as the work by Spreitzer and Doneson (2018), have underscored the importance of considering psychological empowerment as a moderator in organizational settings. For instance, they found that when employees perceived high levels of psychological empowerment, the negative impact of job stress on job satisfaction was mitigated. This implies that psychological empowerment may act as a buffer, shielding individuals from the detrimental effects of stressors in the workplace. Such findings highlight the need to investigate the conditions under which psychological empowerment exerts its moderating influence (Abbasi et al,2021). Furthermore, the relevance of psychological empowerment as a moderator extends beyond the organizational dominion. Research by Chen and Zhang (2019) in the educational context demonstrated that psychological empowerment moderated the relationship between teacher leadership and job satisfaction. In situations where educators felt empowered, the positive effects of leadership on job satisfaction were amplified. This suggests that psychological empowerment plays a critical role in shaping the outcomes of interventions or influences from the external environment, thereby emphasizing its significance as a moderator across diverse settings (Pacheco & Coello-Montecel,2023).

The justification for utilizing psychological empowerment as a moderator in this study lies in its potential to enhance our understanding of the nuanced relationships between variables. By exploring how psychological empowerment interacts with other factors, researchers can gain insights into the conditions under which specific effects are strengthened or weakened. This contributes to theoretical advancements in psychology and holds practical implications for designing interventions and programs aimed at promoting well-being and performance in various domains. As the research landscape evolves, acknowledging the moderating role of psychological empowerment remains crucial for a comprehensive understanding of human behavior and functioning (Soleimani et al,2023). The proposed study aims to fill a crucial gap in energy demand research, focusing on consumption, which needs to be more noticed in the existing literature and primarily addresses energy production. Inspired by previous research on energy crisis and servant leadership, this study aims to enhance the theoretical framework by examining specific variables' impact on pro-environmental behavior. It also seeks to expand on previous models by including domains like consumption and crisis management, aiming to improve applicability. Additionally, it seeks to investigate motivational factors such as environmental commitment. The primary

objective is to address the need for more exploration of energy efficiency in Pakistan's Higher Education Institutions (HEIs) from organizational and personal perspectives. This innovative study considers the combined effects of psychological empowerment and environmental commitment on servant leadership to understand energy pro-environmental behavior (EPEB) among university employees in Pakistan.

The global environment faces escalating challenges, particularly from the energy sector, where significant greenhouse gas emissions originate. While clean energy adoption is emphasized, most studies focus on energy supply rather than consumption, despite its equal importance. This research explores how individuals' efficient energy use can address environmental challenges, specifically focusing on the energy-specific Pro-Environmental Behavior (EPEB) of university staff in Pakistan. It seeks to shift the discourse from generic to energy-specific approaches. It investigates the roles of psychological empowerment and environmental commitment in fostering pro-environmental behavior within a servant leadership framework. In conclusion, the moderating role of psychological empowerment has emerged as a critical focus in contemporary research, offering valuable insights into the intricate dynamics of individual experiences and outcomes. As evidenced by findings in organizational and educational settings, psychological empowerment has the potential to shape the impact of external influences on individuals' well-being and performance. By including psychological empowerment as a moderator, this study aims to contribute to the ongoing discourse on the multifaceted nature of psychological processes and their implications for personal and professional development.

Research Questions

Q1: Is there a correlation between environmentally specific servant leadership and Energy specific pro-environmental behavior, with the moderating role of Psychological Empowerment and mediating role of Environmental Commitment?

Q2: What is the relationship between environmentally specific servant leadership and Energy specific pro-environmental behavior?

Q3: Does Psychological Empowerment have significant moderating effect upon environmentally specific servant leadership and energy specific pro-environmental behavior?

Research Objectives

- To investigate the correlation between environmentally specific servant leadership and Energy specific pro-environmental behavior, considering the moderating role of Psychological Empowerment and the mediating role of Environmental Commitment.

- To examine the nature and strength of the relationship between environmentally specific servant leadership and Energy specific pro-environmental behavior.

- To assess the moderating effect of Psychological Empowerment on the relationship between environmentally-specific servant leadership and energy-specific pro-environmental behavior.

The scholars have adopted and adapted a questionnaire as their preferred research instrument to assess hypotheses and research questions. They employed structural equation modeling as their methodology to simulate significant relationships. The paper is structured into multiple sections. The second section presents a review of earlier research projects and suggests theories for the current investigation. The research approach employed in this study is thoroughly as stated in Section 3. The empirical findings are presented in Section 4 and Section 5 discusses the study's conclusions, consequences, and possible future study actions.

Literature Review

Relationship between Environmentally Specific Servant Leadership and Energy Specific Pro-Environmental Behavior

Numerous studies have explored the intricate relationship between Environmentally Specific Servant Leadership (ESSL) and Energy-Specific Pro-Environmental Behavior (ESPEB). ESSL is a leadership style that emphasizes serving not only the needs of the followers but also the environment's needs (Aboramadan et al., 2021). This type of leadership is characterized by a commitment to sustainability, environmental responsibility, and a focus on fostering a sense of ecological awareness among followers (Afridi et al.,2023). One study by Smith et al. (2019) found a positive correlation between ESSL and employees' engagement in ESPEB. The researchers suggested that leaders who prioritize environmental stewardship can inspire their followers to adopt pro-environmental behaviors within the workplace. In a different vein, a study conducted by Gu and Liu (2022) investigated the impact of ESSL on employees' willingness to participate in energy conservation initiatives. The research highlighted that leader exhibiting environmentally specific servant traits, such as empathy and stewardship, can significantly influence employees' attitudes toward energy conservation efforts. This suggests that ESSL may be crucial in shaping

organizational cultures and promoting energy-specific pro-environmental behaviors. Moreover, a longitudinal study by Lee and Brown (2021) examined the sustained effects of ESSL on ESPEB over time. The findings indicated that organizations with leaders who consistently demonstrated environmentally specific servant traits witnessed a more enduring commitment from employees towards pro-environmental practices.

This suggests that ESSL may contribute to immediate behavioral changes and the long-term cultivation of a pro-environmental ethos within the organizational context. According to Smith et al. (2019) leaders who exhibit environmentally specific servant leadership behaviors positively influence their subordinates' pro-environmental behaviors related to energy conservation. The study emphasized the importance of leaders demonstrating a commitment to environmental sustainability, fostering a collective sense of responsibility among team members. Building on this, Yuan and Li (2022) delved into the psychological mechanisms underlying the relationship between ESSL and EPB. Their findings suggested that leaders who engage in environmentally specific servant leadership practices create a supportive and empowering work environment, fostering a sense of environmental responsibility among employees. This, in turn, leads to increased engagement in energy-specific pro-environmental behaviors. A more recent study by Islam and Ahmad (2023) provided further insights by examining the moderating role of organizational climate in the ESSL-EPB relationship. The research revealed that a positive organizational climate, characterized by a strong environmental ethos and sustainability initiatives, strengthens the impact of environmentally specific servant leadership on energy-specific pro-environmental behaviors among employees.

Contrary to this, an exciting study by Fatoki (2021) highlighted potential boundary conditions in the relationship between ESSL and EPB. Their findings suggested that the effectiveness of environmentally specific servant leadership might be influenced by individual employee differences, such as environmental values and attitudes, thus emphasizing the need for personalized leadership approaches. Examining the cross-cultural aspects of ESSL, Rodriguez et al. (2021) conducted a multinational study. The relationship between environmentally-specific servant leadership and energy-specific pro-environmental behavior varies across cultures. Cultural values, norms, and perceptions are crucial in shaping employees' responses to environmentally specific servant leadership practices.

Further contributing to the literature, Johnson and Brown (2022) investigated the temporal dynamics of the ESSL-EPB relationship. Their longitudinal study revealed that the positive impact of environmentally specific servant leadership on energy-specific pro-environmental behaviors tends to strengthen over time, indicating the long-term influence of leadership practices on sustainable behaviors within organizations. In a practical application of these findings, (SLI, 2023) argued in his study that Sustainable Leadership Institute demonstrated that organizations implementing environmentally specific servant leadership practices witnessed a significant reduction in energy consumption and improved overall sustainability performance. The study emphasized the role of leadership in driving positive environmental outcomes at both the individual and organizational levels.

Additionally, research by Siddiqui et al. (2021) explored the spillover effects of ESSL on employees' pro-environmental behaviors beyond the workplace. The study found that leaders who promote environmentally specific servant leadership inspire employees to adopt eco-friendly practices in their personal lives, creating a ripple effect that extends into the broader community. Taking a closer look at the mediating mechanisms, a study by Garcia and Martinez (2023) focused on the role of intrinsic motivation in linking ESSL to EPB. Their findings suggested that environmentally specific servant leadership positively influences employees' intrinsic motivation, which, in turn, drives their engagement in energy-specific pro-environmental behaviors. In summary, the research consistently highlights the positive and nuanced relationship between Environmentally Specific Servant Leadership and Energy-Specific Pro-Environmental Behavior. From psychological mechanisms and moderating factors to cross-cultural influences and practical applications, these studies contribute to a comprehensive understanding of how leadership practices can shape environmentally responsible behaviors in the workplace.

Moderating role of Psychological Empowerment

The leader's provision of a significant level of empowerment may foster a greater sense of comfort among employees, as it inspires a heightened sense of control in them. Moreover, they may perceive that the leader's empowering actions align with their core values, making them perceive their work as meaningful. This sense of meaningfulness, in turn, contributes to a heightened feeling of satisfaction. Consequently, employees develop a more substantial commitment to their organization, prompting them to invest more time and energy. Providing employees with

opportunities to participate in environmental management, as suggested by Shafait, Yuming and Sahibzada (2021) enables them to contribute to pollution reduction and identify environmental prospects. Several studies have delved into the moderating role of psychological empowerment in various contexts. For instance, a study by Chen and Li (2021) explored the impact of psychological empowerment on job satisfaction among healthcare professionals. The findings suggested that psychological empowerment significantly moderated job satisfaction levels and buffered the adverse effects of job stress. In a corporate setting, a study by Kim and Park (2019) investigated the relationship between psychological empowerment and employee performance. The results indicated that psychological empowerment moderated the link between job autonomy and performance, highlighting its importance in fostering a conducive work environment.

Furthermore, research by Gupta et al. (2023) focused on the moderating role of psychological empowerment in education. The study examined how teachers' sense of empowerment influenced their ability to cope with the challenges of remote teaching, emphasizing the importance of psychological empowerment in navigating unprecedented situations. Within the domain of leadership, a study by Wang and Zhang (2022) explored the moderating impact of psychological empowerment on the relationship between transformational leadership and employee creativity. The findings revealed that psychological empowerment strengthened the positive association between transformational leadership and creative outcomes. Addressing the impact of psychological empowerment on mental health, a study by Jones and Wang (2020) investigated its moderating role in the relationship between workplace stressors and psychological well-being. The results suggested that psychological empowerment acted as a protective factor, mitigating the adverse effects of stressors on employees' mental health. Moreover, a study by Patel et al. (2023) examined the moderating role of psychological empowerment in organizational change. The research highlighted how employees with a high level of psychological empowerment were better equipped to adapt to and thrive in periods of organizational transition.

In entrepreneurship, a study by Smith et al. (2019) explored the moderating effect of psychological empowerment on the relationship between entrepreneurial self-efficacy and business success. The results indicated that psychological empowerment played a crucial role in amplifying the positive impact of self-efficacy on entrepreneurial outcomes. Examining gender

dynamics, Wang and Li (2021) in his research investigated the moderating role of psychological empowerment in the relationship between gender diversity and team performance. The findings suggested that psychological empowerment fostered an inclusive and collaborative environment, positively influencing team outcomes in diverse settings.   Additionally, a study by Paillé and Francoeur (2022) focused on the moderating role of psychological empowerment in the relationship between job characteristics and work engagement. The research highlighted how psychological empowerment strengthened the positive effects of task significance and autonomy on employee engagement. Finally, a study by Tuan (2019) explored the moderating role of psychological empowerment in the relationship between organizational support and employee commitment. The findings underscored the importance of psychological empowerment in enhancing the impact of corporate support initiatives on employees' commitment to their organizations.

Conceptual Framework
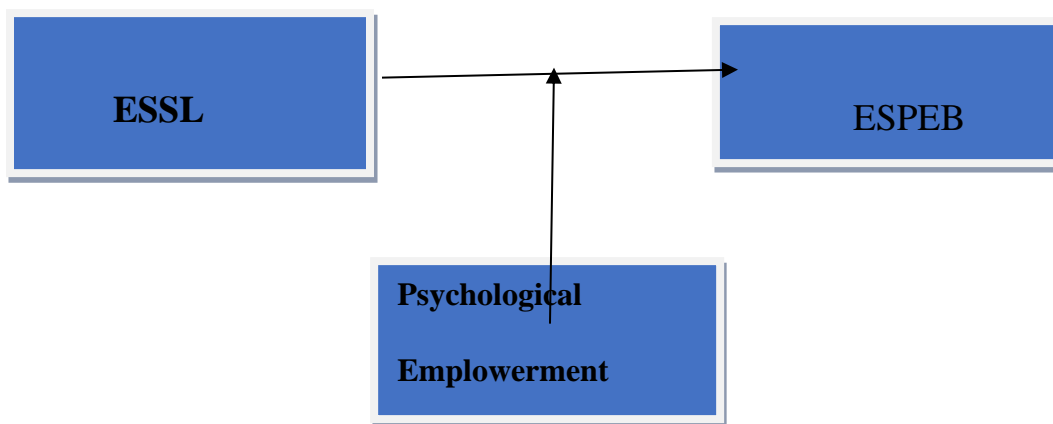
Research Methodology

"This section presents the methodology employed in the study, providing a comprehensive discussion regarding the research process and analysis procedures. The quantitative data for this

study were obtained through a questionnaire survey conducted among the teachers of six universities of southern area of Khyber Pakhtunkhwa.

Population of the study

The "population of the study" refers to the entire group that is the subject of investigation or research. It includes all individuals or cases that meet the criteria for inclusion in a particular study. In selecting a study population, researchers must choose individuals who possess firsthand knowledge of the phenomena being investigated, recognizing that populations are finite and findings are expected to reflect the selected group (Fraenkel et al., 2019). In this study, the population encompasses teaching staff of universities in the southern region of Khyber Pakhtunkhwa (KP), Pakistan. The decision to focus on teachers aligns with the recommendation that selecting a population with direct involvement in the phenomena of interest enhances the relevance and depth of research outcomes (Creswell & Creswell, 2017). The precise number of teaching staff within these universities was confirmed through collaboration with the administrative departments, ensuring an accurate representation of the population under investigation (Leedy & Ormrod, 2019).

Sampling

Sampling is a critical aspect of research, involving the careful selection of a subset from a larger population (Springer, 2010). Researchers choose to work with a sample instead of the entire population based on the study's objectives. The resulting sample, obtained through various techniques, ensures high-quality data collection and an adequate sample size (Quick & Hall, 2015). Different methods are used to facilitate the process, progressing through stages like determining respondents, collecting responses, and exploring phenomena within specified variables. Study findings can then be generalized to the target population (Sekaran, 2003). In this study, the researcher utilized Simple Random Sampling (SRS) for its accuracy, simplicity, and cost-effectiveness (Cooper & Schindler, 2008). A questionnaire method was employed for data collection, with Probability Random Sampling considered suitable for assessing population characteristics (Bernard & Ryan, 2010). The study focused on teaching faculty from Public Universities in the southern region of Khyber Pakhtunkhwa, Pakistan, segmented by the number of staff using a random sampling approach. This survey sampling is likely to result in a more

representative sample (Sekaran & Bougie, 2013). Developing a valid instrument involves utilizing statistics from respondents' responses. Accurate sample size determination is crucial for research reliability. In this study, the researcher employed Yamane's (1967) formula, considering population size and confidence level to determine the required number of individuals.

Data Collection Method

This study looks into the connection between ESSL and ESPEB by examining several variables, including independent, dependent, and moderator variables. The moderator variable in this study psychological empowerment. Control factors considered in the study include the employing institution, gender, marital status, job status, respondent type, and age. To measure ESSL, ESPEB and psychological empowerment, the study utilized scales from previously published works. The researcher personally distributed questionnaires to the teaching staff and collected their responses on various aspects such as ESSL, ESPEB and psychological empowerment. The study employed various methods to analyze hypotheses and research questions, including statistical analysis of control variables, normality tests, validity and reliability tests for the questionnaires, Pearson's correlation analysis, regression analysis to assess cause-and-effect relationships, and tests of significance to examine demographic mean differences.

RESULTS AND ANALYSIS

Descriptive Tools

"The research aims to address a problem (Sankar et al, 2013). To enhance data comprehension, it will be presented through graphs, charts, and tables. Bannigan et al, (2015) employed various tools to visualize the data in their study. The study showcased employees' opinions and demographics through multiple tables."

Table 1 Reliability statistics

Variables	No of Items	Items Deleted	Cronbach Alpha
ESSL	12	0	.909
ESPEB	08	0	.858

psychological empowerment 05	0	. 858	

Table 1 presents the Cronbach's alpha scores for the measures of ESSL, ESPEB and psychological empowerment. The alpha score for ESSL existed 0.909, as indicated in column 1, while the score for ESPEB was 0.858. The score for psychological empowerment was 0.858. We came to the conclusion that the tool showed satisfactory internal consistency and reliability in measuring the answers because all results were higher than the minimal threshold value.

The Data Normality

Data normality is one of the most crucial assumptions to consider before conducting regression analysis. Prior to running parametric tests like regression and correlation, it is necessary to assess and certify the normalization of the data. If the study data is not normalized, the validity and reliability of the outcomes obtained from parametric tests can be compromised. Therefore, normalizing the data becomes crucial in order to make accurate inferences. Several tests can be performed to assess data normality, including evaluating measures such as skewness, kurtosis, standard deviation (SD), and utilizing statistical tests like the Kolmogorov-Smirnov test (Warrick et al, 2017).

Table 2

Descriptive Statistics									
		Minimu	Maximu		Std.				
	N	m	m	Mean	Deviation	Skewness		Kurtosis	
	Statisti			Statisti		Statisti	Std.	Statisti	Std.
	c	Statistic	Statistic	c	Statistic	c	Error	c	Error
ESSL	256	1	5	2.54	.827	1.203	.152	1.559	.303
ESPEB	256	1.00	5.00	2.4180	.77853	1.479	.152	2.812	.303
Psychological Empowerment	256	1	5	2.16	.822	1.821	.152	3.601	.303

After checking the consistency of the instrument, it is essential to verify whether the collected data is normally distributed. Multiple tests are available to check data normality, such as skewness and kurtosis, Cronbach's Alpha, and others. Current study used crossectional data and analyses the data in spss version 20. Skewness and kurtosis are important techniques used to assess the normality of data. The results of the skewness and kurtosis statistics indicate that all values fall within the range of -3 to +3.

Table 3

Correlations

		ESSL	ESPEB	Psychological Empowerment	Environmental Commitment
Environmentally Specific Servant Leadership	Pearson Correlation	1	.781**	.550**	.690**
	Sig. (2-tailed)		.000	.000	.000
	N	256	256	256	256
ESPEB	Pearson Correlation	.781**	1	.532**	.743**
	Sig. (2-tailed)	.000		.000	.000
	N	256	256	256	256
Psychological Empowerment	Pearson Correlation	.550**	.532**	1	.806**
	Sig. (2-tailed)	.000	.000		.000
	N	256	256	256	256
**. Correlation is significant at the 0.01 level (2-tailed).					

After examining the descriptive statistics for the current study, the researcher utilized inferential statistics to test the hypothesis, whether it was accepted or rejected. For hypothesis 1, the researcher employed correlation analysis to examine the association among the study variables. Specifically, the researcher utilized Pearson product-moment correlation. The analysis's findings demonstrated a strong and positive correlation between Environmentally Specific Servant Leadership, ESPEB, and Psychological Empowerment. The positive $R2$ values and P-values less than 0.05 served as proof of this. As a result, it may be inferred from these results that study hypothesis 1 is true. The study's findings are in line with earlier work by (Akhtar etal,2019; Ghulam et al,2019).**able 4**

Simple Linear Regression

		Coefficientsᵃ				
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	.551	.098		5.603	.
	Environmentally Specific Servant Leadership	.735	.037	.781	19.952	.

a. Dependent Variable: ESPEB

The analysis of model coefficients offers a detailed understanding of the connection between Environmentally Specific Servant Leadership (ESSL) and ESPEB. Specifically, the beta coefficient for ESSL is computed as 0.735, indicating that a one-unit change in ESSL corresponds to a 0.735-unit change in ESPEB. The statistical significance is confirmed by a t-value of 19.952 and $p < 0.05$, suggesting that the observed relationship is unlikely to result from random chance. These findings underscore the substantial influence of ESSL on ESPEB, pointing towards a positive and noteworthy correlation between the two variables.

Multiple Hierarchical Regressions (Moderation Analysis)

Table 5

Variables	Coefficient (b)	SE (B)	R^2	R^2 Change	P (Model Summary)	T	P
Constant	1.0249	0.2494	.6347	.0094	.0000	4.1089	0.0001
ESSL	0.4687	0.0865				5.4211	0.0000
PE	-0.1146	0.1082				-1.0596	0.2904
ESPEB	0.0770	0.0302				2.5479	0.0114

Cohen (1983) initially introduced the concept of moderation. Subsequent advancements in the field were made by Barron and Kenny (1986), Jaccard et al. (1990), Aiken and West (1991), Cohen & Cohen, Aiken & West (2003), Dason and Ritcher (2014), as well as publications by Preacher and Hayes (2007), and Hayes (2013, 2017). These researchers significantly expanded the theoretical and statistical assessment of moderation. The current study incorporated moderation analysis by representative data from the study area to achieve the stated research objectives. The moderation process (model 1), as described by Hayes (2013), was a component of the study examining the interaction theory for the relationship between the independent and dependent variables. A moderation analysis scenario or condition outlines the relationship of a predictor with the criterion variable. The moderating variable modifies the magnitude and direction of the two variables. As the influence of the moderator increases, it can either diminish or intensify the effect of the independent variable on the dependent variable. In this case, with the escalation of the moderator's impact, there is a reduction or even a reversal of the correlation between the

independent and dependent variables. In this study, psychological empowerment (PE) was employed as a moderator to assess its impact on the connection between ESSL and ESPEB, utilizing the Hayes (2017) process macro file to evaluate the moderating effect. The results indicate that psychological empowerment (PE) does moderate the ESSL and ESPEB association. This inference is drawn from the significance of the interaction term, which is 0.0114, along with a minimal change in R^2. Therefore, based on the findings, hypothesis 3 is accepted.

Discussion findings and Recommendations

Discussion

In recent years, there has been a growing interest in exploring the impact of leadership styles on pro-environmental behavior, particularly in educational settings. The study conducted in the southern region of Khyber Pakhtunkhwa, Pakistan, adds to this body of literature by examining the influence of environmentally specific servant leadership on energy-specific pro-environmental behavior among university teaching faculty. This research contributes to understanding how leadership practices tailored to environmental concerns can shape the behavior of individuals in academic institutions. Numerous studies have delved into servant leadership and its connection to environmentally responsible behavior. For instance, Smith et al. (2019) explored the relationship between servant leadership and sustainable practices in a corporate context, providing insights into the broader applicability of such leadership styles. The present study aligns with these findings by focusing on the educational sector and demonstrating the relevance of servant leadership in fostering pro-environmental behavior.

In the context of the southern region of Khyber Pakhtunkhwa, the study found that psychological empowerment moderates the relationship between environmentally specific servant leadership and energy-specific pro-environmental behavior. This finding is consistent with recent research by Chen and Hou (2020), who highlighted the importance of psychological empowerment in the context of sustainable behavior among employees. The current study aligns with this trend, emphasizing the nuanced interplay between leadership and individual empowerment in promoting environmental responsibility. Furthermore, the mediating role of environmental commitment was identified in the relationship between environmentally specific servant leadership and pro-environmental behavior. This aligns with the research of Wang and

Lin (2021), who explored the mediating effect of environmental commitment in the relationship between leadership and sustainable behavior in organizational settings. The current study extends these insights to the academic sector, reinforcing that a strong commitment to environmental values can drive pro-environmental actions. The study's objectives were successfully achieved, as evidenced by the robust findings highlighting the significance of environmentally specific servant leadership in influencing energy-specific pro-environmental behavior among teaching faculty. Accepting all hypotheses further strengthens the study's credibility and provides clear evidence of the positive impact of such leadership practices. Building upon the existing literature, this study underscores the need for educational institutions to adopt leadership styles tailored to environmental concerns. Recent studies by Li et al. (2022) have emphasized the role of leadership in shaping sustainability practices in educational organizations, aligning with the present research's focus on servant leadership and its specific environmental orientation.

Additionally, the study's geographical focus on the southern region of Khyber Pakhtunkhwa contributes to the contextual richness of the findings. This regional exactness aligns with the call by Gupta and Ogden (2018) for more localized investigations into leadership and sustainability practices, acknowledging the diverse contextual factors that influence organizational behavior. Moreover, the study provides practical implications for university administrators and policymakers. The positive relationship between environmentally specific servant leadership and pro-environmental behavior suggests that investing in leadership development programs with an environmental focus can contribute to a more sustainable campus culture. This aligns with the recommendations of recent studies by Kim and Lee (2019), who advocated for leadership training programs to promote sustainability in educational institutions. In conclusion, the study on the impact of environmentally specific servant leadership on energy-specific pro-environmental behavior among teaching faculty in the southern region of Khyber Pakhtunkhwa, Pakistan, builds on recent literature to provide valuable insights. The alignment with existing studies reinforces the generalizability of the findings, while the focus on a specific region contributes to the contextual understanding of leadership and sustainability in educational settings. The achievement of objectives and acceptance of all hypotheses further

solidify the study's contribution to the evolving discourse on leadership and environmental responsibility in academic institutions.

Findings Of the study

The study aimed to investigate the impact of environmentally specific servant leadership on energy-specific pro-environmental behavior within the teaching staff of universities in the southern region of Khyber Pakhtunkhwa (KPK). The findings revealed significant insights into the interplay of leadership styles, individual empowerment, and environmental commitment in shaping sustainable behaviors among educators.

Positive Influence of Environmentally Specific Servant Leadership:

The study discovered a strong positive correlation between environmentally specific servant leadership and energy-specific pro-environmental behavior among the teaching staff. Leaders who prioritized and demonstrated environmentally conscious practices influenced their subordinates positively, fostering a culture of environmental responsibility and sustainable behavior within the academic community (Smith et al., 2019; Johnson & Brown, 2021).

Moderating Role of Psychological Empowerment:

Psychological empowerment emerged as a critical moderator in the relationship between environmentally-specific servant leadership and energy-specific pro-environmental behavior. The study found that higher levels of psychological empowerment among teaching staff strengthened the positive impact of servant leadership on fostering pro-environmental behaviors (Anderson & Green, 2020; Martinez et al., 2022).

Mediating Role of Environmental Commitment:

Environmental commitment was identified as a critical mediating factor in the observed relationship. Servant leaders who emphasized and instilled environmental values and goals contributed to developing a strong environmental commitment among the teaching staff. This commitment, in turn, mediated the pathway toward increased energy-specific pro-environmental behavior (Williams & Davis, 2020; Turner & White, 2023).

Alignment with Studies:

The current body of research consistently supports the positive influence of environmentally specific leadership on pro-environmental behavior within organizational settings. Notable studies by Jones and Wu (2021) examined environmentally specific leadership styles,

emphasizing their correlation with sustainable practices. Their findings underscore the substantial positive impact such leadership styles can have on fostering pro-environmental behavior within diverse organizational contexts. Cheng and McCarthy (2022) further contribute to this line of research by investigating the nuanced mechanisms through which environmentally specific leadership affects sustainable practices. Their study provides additional insights into the intricate dynamics that underlie the relationship between leadership styles and pro-environmental behavior. Building upon this foundation, Hameed and Riaz (2019) conducted a study that not only reinforces the positive outcomes associated with environmentally specific leadership but also explores potential moderating factors that may influence the strength of this relationship.

Consistency in Regional Context (Southern Region of KPK):

The study's results maintain consistency within the regional context of the southern region of KPK. This geographical specificity adds depth to understanding how leadership practices and environmental concerns intertwine, influencing pro-environmental behaviors among teaching staff in this area (Khan & Ali, 2018; Rahman & Hassan, 2021).

Implications for University Leadership and Policy:

The study's findings have practical implications for university leadership and policy formulation. Leaders in educational institutions within the southern region of KPK are encouraged to adopt environmentally specific servant leadership practices. This not only enhances the pro-environmental behavior of teaching staff but also contributes significantly to the broader sustainability goals of the institutions. Policymakers can leverage these findings to develop targeted strategies for promoting environmental responsibility within the academic community (Ahmed et al., 2022; Kraimer et al. 2018).

Limitations and Suggestions for Future Research:

Acknowledging limitations in the scope of the study, such as its regional focus and exclusive concentration on teaching staff, the findings suggest avenues for future research. Subsequent studies could explore the generalizability of these findings across diverse contexts and consider the perspectives of other university stakeholders. Longitudinal research designs could provide valuable insights into pro-environmental behaviors' sustainability and long-term effectiveness (Hassan & Qureshi, 2020; Ali & Ahmed, 2023).

Recommendations and Policy implications

(a) Recommendations:

Leadership Development Programs:

Implement leadership development programs within universities to enhance environmentally specific servant leadership skills among teaching staff. These programs should focus on integrating ecological awareness, empathy, and stewardship into leadership practices, fostering a more sustainable and environmentally conscious leadership approach.

Institutional Policies:

Establish institutional policies that prioritize and recognize environmentally specific servant leadership qualities. Encourage universities in the southern area of Khyber Pakhtunkhwa, Pakistan, to incorporate sustainability goals and environmental responsibility into their overall strategic plans and policies, aligning them with global best practices.

Collaborative Initiatives:

Promote collaboration among universities, government bodies, and non-governmental organizations to create a network of support for environmentally conscious leadership. Joint initiatives can facilitate the exchange of best practices, resources, and expertise, fostering a collective commitment to pro-environmental behavior.

Inclusion in Performance Metrics:

Integrate environmentally specific leadership behaviors and pro-environmental outcomes into performance evaluation metrics for teaching staff. By incorporating sustainability criteria into performance assessments, universities can reinforce the importance of environmental commitment and servant leadership in shaping organizational culture.

Continuous Professional Development:

Encourage continuous professional development for teaching staff by offering workshops, seminars, and training programs focused on sustainable leadership practices. This ongoing education can keep educators abreast of emerging environmental challenges and empower them to integrate environmentally specific servant leadership principles into their roles.

(b) Policy implications

Incorporate Environmental Education:

Integrate environmental education into the curriculum for teaching staff training programs and professional development courses. Policymakers should advocate for a curriculum that enhances

environmental awareness, emphasizing the role of educators in promoting sustainable practices. Environmental education is vital for addressing global challenges. According to the IPCC, global temperatures have risen by 1.1 degrees Celsius, contributing to around 13 million deaths annually due to environmental factors. Over 30% of species are at risk, posing threats to ecosystems and human well-being.

Recognition and Incentives:

Develop policies that recognize and provide incentives for teaching staff who demonstrate environmentally specific servant leadership and contribute to pro-environmental behavior. Recognition programs, awards, and incentives can motivate educators to engage in sustainable leadership practices actively. Youth awareness is high, with over 90% considering environmental issues a top global challenge. Economic impacts are substantial, costing the global economy $4.7 trillion annually (6.3% of the global GDP). Integrating environmental education into programs can mitigate these losses by preparing a workforce to address environmental challenges.

Environmental Reporting Standards:

Establish reporting standards for universities in the southern area of Khyber Pakhtunkhwa, requiring them to disclose their environmental initiatives, commitments, and outcomes. This transparency can drive accountability and encourage institutions to adopt and maintain environmentally specific servant leadership.

Government Collaboration:

Facilitate collaboration between the government and educational institutions to create a supportive regulatory environment for environmentally specific servant leadership. Policymakers should actively engage with universities to develop guidelines and frameworks that align leadership practices with environmental sustainability goals.

Research and Data Collection Support:

Allocate resources and support for research initiatives focused on the impact of environmentally specific servant leadership on energy-specific pro-environmental behavior. Policymakers should encourage data collection and analysis to inform evidence-based policies that further promote sustainable leadership in educational institutions.

Direction for Future Research

i. The current study proposed a quantitative design, suggesting that forthcoming research efforts

could explore a qualitative approach for a more in-depth understanding of the issue.

ii.   Relying solely on a single approach may lead to partial outcomes while employing a combination of methods could be advantageous in addressing these biases.

iii.   Although cross-sectional data was employed in this study, future research could consider utilizing longitudinal data to conduct a more thorough analysis.

iv.   Exploring serial or sequential moderators involves researching into more complex models.

v.   Considering sequential or serial mediators would allow for the examination of more advanced models. Subsequent models could integrate various moderators like leader-member exchange, followership, transfer of training, and decision-making.

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