

The Moderating Effect of Supportive Leadership on Green HRM, Green Behavior, and HR Performance

*Moderating Effect of
Leadership on HR
Performance*

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ABSTRACT

Environmental concerns have prompted organizations to integrate sustainability into human resource practices, yet the implementation of environmentally focused practices in Indonesia's public sector remains limited. This study aims to investigate the effect of environmentally oriented human resource management practices on employees' green behavior and performance, with supportive leadership examined as a moderating variable. Data were collected from employees of the Central Bureau of Statistics in North Sumatra Province using a ten-point Likert-scale survey and analyzed through structural equation modeling. The findings reveal that environmentally oriented human resource management significantly enhances both green behavior and employee performance. Green behavior also contributes to improved performance, serving as a key mechanism linking sustainable human resource practices with work outcomes. Additionally, supportive leadership strengthens the impact of these practices by fostering environmental responsibility and employee engagement. The study underscores the theoretical relevance of environmentally focused human resource management in Indonesia's public sector and highlights the critical role of leadership in promoting sustainability. Structured environmental programs, transparent communication, and reward systems are recommended to cultivate a culture of environmental responsibility.

Keywords: *Employee Performance, Green Employee Behavior, Green Human Resource Management, Public Sector, Supportive Leadership.*

ABSTRAK

Masalah lingkungan telah mendorong organisasi untuk mengintegrasikan keberlanjutan ke dalam praktik sumber daya manusia, tetapi penerapan praktik yang berfokus pada lingkungan di sektor publik Indonesia masih terbatas. Penelitian ini bertujuan untuk menyelidiki pengaruh praktik manajemen sumber daya manusia yang berorientasi lingkungan terhadap perilaku hijau karyawan dan kinerja secara keseluruhan, dengan kepemimpinan yang mendukung diperiksa sebagai variabel moderasi. Data dikumpulkan dari pegawai Badan Pusat Statistik Provinsi Sumatera Utara menggunakan survei skala Likert sepuluh poin dan dianalisis melalui structural equation modeling. Temuan ini mengungkapkan bahwa manajemen sumber daya manusia yang berorientasi lingkungan secara signifikan meningkatkan perilaku hijau dan kinerja karyawan. Perilaku hijau juga berkontribusi pada peningkatan kinerja, berfungsi sebagai mekanisme utama yang menghubungkan praktik sumber daya manusia yang berkelanjutan dengan hasil kerja. Selain itu, kepemimpinan yang mendukung memperkuat dampak dari praktik ini dengan mendorong tanggung jawab lingkungan dan keterlibatan karyawan. Studi ini menggarisbawahi relevansi teoritis manajemen sumber daya manusia yang berfokus pada lingkungan di sektor publik Indonesia dan menyoroti peran penting kepemimpinan dalam mempromosikan keberlanjutan. Secara praktis,

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INTRODUCTION

Entering the twenty-first century, worldwide awareness of environmental harm resulting from human actions has significantly increased. Various international agreements, such as Kyoto, Bali, and Copenhagen, reflect increased global awareness of climate change issues (Ahmad, 2015; Maamoun, 2019). This condition shows how critical the planet's situation is, requiring collaboration from all sectors, including government, businesses, NGOs, and households, to implement sustainable reforms.

Western countries like the UK have become models of environmental achievement through distinctive Go Green initiatives supported by governments, consumers, citizens, and employees (Bansal & Roth, 2000; Lasrado & Zakaria, 2020; Shoaib et al., 2022; Merritt & Stubbs, 2022). Green business practices create win-win outcomes for all stakeholders (Ponzi, 2019). The global "go green" movement aims to reduce environmental degradation by encouraging people to protect natural resources, minimize global warming impacts, and improve the quality of life. Although environmental protection policies exist across industries, their implementation remains uncertain. Nonetheless, organizations are increasingly engaging in green practices (Moktadir et al., 2018; Elmagrhi et al., 2019).

In Indonesia, the awareness of eco-friendly workplaces began with Presidential Decree Number 13 of 2011 concerning water and energy conservation, marking the government's initial step in encouraging the green movement in offices. Today, companies even position green practices as mandatory responsibilities for employees. Corporate involvement in environmental management encourages employees to contribute to environmental protection, reflected in shared commitment known as Green Human Resource Management (GHRM) (Ahmed, 2015). GHRM represents organizations' strategic initiatives to embed environmental responsibility in human resource functions (Opatha & Arulrajah, 2014; Nisa et al., 2016; Anjum et al., 2022). This concept has gained popularity among researchers because GHRM is believed to support the achievement of environmental performance through improved HR performance (Rawashdeh, 2018; Yusoff et al., 2020).

The implementation of GHRM influences employees' pro-environmental behavior both directly and indirectly (Islam et al., 2020). Chaudhary's (2020) study demonstrated a significant relationship between GHRM practices and green employee behavior. Human resources act not only as drivers but also as determinants of organizational performance success (Jabbar & Abid, 2014). Thus, establishing green HR performance contributes positively to environmental performance. Furthermore, research by Kim et al. (2019) identified green employee behavior as a mediating variable in the relationship between GHRM and environmental performance. They recommended future research to incorporate supportive organizational factors that strengthen the link between GHRM and company performance.

Despite these advancements, Indonesia still faces environmental challenges. Based on the Environmental Performance Index in 2022, Indonesia scored 28.20, ranking 164th out of 180 countries, below neighboring ASEAN countries such as Singapore, East Timor, and Malaysia. The low environmental quality is associated with inadequate mastery of green industry concepts, reflected in the still limited application of GHRM practices in Indonesian organizations (Assyofa et al., 2020). Likewise, the Ministry of Energy and Mineral Resources reported that 80% of energy wastage originates from human behavior, indicating insufficient implementation of green practices in both public and private offices (Suharyati et al., 2019).

Research on GHRM in Indonesia remains limited, with only a few studies such as Assyofa et al. (2020), Bowolaksono et al. (2021), Khairunnisak and Suharnomo (2022), and Hastuti and Muafi (2022). Most literature highlights conceptual discussions, leaving a research gap concerning the influence of GHRM adoption, particularly in the public service sector. Therefore, there is a need to investigate whether implementing GHRM in Indonesian public service institutions drives employees to behave more environmentally friendly and enhances human resource performance. Moreover, considering leadership as a supportive factor, this study further examines the role of supportive leadership behavior in strengthening the influence of GHRM on HR performance. Thus, this study aims to analyze the influence of GHRM on green employee behavior and human resource performance, as well as the moderating effect of supportive leadership within Indonesia's public service sector.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Green Human Resource Management and Human Resource Performance

Green Human Resource Management (GHRM) is a relatively new field that addresses environmental protection through human resource management practices (Yong et al., 2020; Darvishmotevali & Altinay, 2022). GHRM is defined as "human resource management activities that enhance positive environmental outcomes and enhance environmental stability", and is considered a complement to traditional HRM (Hameed et al., 2020; Paulet et al., 2021). The focus of GHRM is applying HR functions such as recruitment, learning and development, empowerment, performance appraisal, and compensation in a green-oriented manner to cultivate a green culture, behavior, and workforce that supports environmental sustainability (Singh et al., 2020). Thus, GHRM prioritizes protection of the company's environment and ecology (Jia et al., 2018).

Green attitudes and behaviors internally motivate employees to engage responsibly in environmental initiatives (Hsiao & Chuang, 2016; Nainggolan & Harsoyo, 2023). Employees and management who share environmental goals align themselves through innovative ideas and practices that enhance environmental performance (Singh et al., 2020). With a shared vision, organizational members are driven to make green behavior part of the organization's lifestyle (Caliskan & Essen, 2019). In this regard, GHRM supports the organizational structure toward sustainability.

GHRM emphasizes environmental protection by minimizing negative impacts and enhancing positive contributions to the environment (Ahmed, 2015). When employees perceive that their actions help sustain a healthier and safer environment, they experience meaningfulness at work, which ultimately enhances performance (Shafaei et al., 2020). Research by Guest (1997) has proven that human resource management significantly influences HR performance; therefore, as an extension of HRM, GHRM is assumed to have a significant impact on human resource performance within organizations.

H1: Green human resource management has a significant effect on improving human resource performance.

The Effect of Green Human Resource Management on Employee Green Behavior

Studies from Sabokro et al. (2021) show that GHRM influences employee green behavior both directly and indirectly through the mediating roles of corporate social responsibility and a green psychological climate. The effect of GHRM on green behavior is expected because environmental values are considered in recruitment and communicated to prospective employees, enhancing green awareness; employees gain knowledge and skills through involvement and training in green initiatives, enabling them to perform green behaviors; and HRM theory states that employees' understanding of HR practices supports their behavioral effectiveness in the workplace. Similarly, Emilisa et al. (2020) confirm that GHRM practices can improve organizational commitment, green behavior, and work performance.

Kim et al. (2019) noted that applying GHRM practices greatly affects environmentally friendly behavior, as human resource management is essential in fostering employees' environmental responsibility. GHRM encourages behavior change so employees become more environmentally conscious not only in the workplace but also in daily life (Renwick et al., 2013; Ahmed, 2015).

Employees can voluntarily engage in pro-environmental behaviors such as recycling, carpooling, or using video conferencing instead of traveling, although these behaviors remain limited due to insufficient understanding of the barriers involved and their variation across policy contexts (Yuriev et al., 2018). According to Ahmad (2015), employee participation in green behaviors supports the effective implementation of GHRM by aligning goals, abilities, motivation, and perceptions toward green HR practices and systems.

H2: Green human resource management has a significant effect on employees' green behavior.

The Effect of Green Behavior on Human Resource Performance

Employees' pro-environmental behavior, or green behavior, involves environmentally conscious efforts to manage energy consumption, reduce waste, recycle materials, and eliminate environmental hazards (Busse & Menzel, 2014; de Leeuw et al., 2015; Al-Swidi et al., 2021). It encompasses workplace practices like recycling, waste management, energy reduction, and actions minimizing environmental harm (Lu et al., 2017). Any behavior positively impacting the environment is termed green or pro-environmental behavior, aiming to reduce losses from human or organizational actions (Unsworth et al., 2013).

Stern (2000) defined green behavior as conscious efforts to reduce negative human impacts on the environment. It includes individual acts minimizing harmful environmental influence and employee behaviors with effective environmental effects (Chaudhary, 2020). Opatha and Arulrajah (2014) identified key reasons for green behavior: minimizing global warming, preventing natural disasters (e.g., acid rain, floods, drought), reducing pollution-related diseases, protecting animals and natural creatures, maintaining balance among plants, animals, humans, and the environment, ensuring long-term survival of humans and organizations.

Kim et al. (2019) specified that corporate green behavior focuses on energy use, water use, and waste reduction. Norton et al. (2015) described it as water conservation, efficient resource use, waste reduction, energy saving, and recycling. Kim et al. (2019) found that green human resource management positively affects green employee behavior, enhancing individual green performance and company environmental performance. Roy et al. (2013) proposed that green behavior supports effective environmental management systems, preservation, and performance improvement.

H3: Green behavior has a significant effect on human resource performance.

Supportive Leadership as a Moderator in GHRM and HR Performance

Supportive leadership behaviors help overcome barriers to organizational change and facilitate employee adaptation (Holten & Brenner, 2015; Yahaya & Ebrahim, 2016; Fitriyah et al., 2024). Transformational leaders, characterized by charisma, inspiration, and motivation, guide subordinates to reach their full potential and achieve positive organizational outcomes (Caillier, 2014; Rujie Qu et al., 2015). Transactional leaders, although supportive, lack charisma and rely on active engagement, contingent rewards, task monitoring, and mutual exchange to achieve goals (Nging & Yazdanifard, 2015; Deichmann & Stam, 2015; Holten & Brenner, 2015; Yahaya & Ebrahim, 2016; Afsar et al., 2017). Combining transformational and transactional styles effectively motivates employees, enhancing performance and goal attainment (Yahaya & Ebrahim, 2016).

Supportive leaders enhance task quality, focus, engagement, openness, honesty, and fairness (Schmidt et al., 2014). Defined as managers' behaviors aiding subordinates' work, supportive leadership positively correlates with employee well-being, retention, and performance, and negatively with stress, anxiety, and depression (Oldham & Cummings, 1996; Chih Ho, 2017). According to House's (1971) path-goal theory, supportive leaders assist subordinates in aligning personal and organizational goals, adopting behaviors tailored to employee needs (Bourini et al., 2019). Consideration, motivation, skill development, and problem-solving by leaders enhance performance and facilitate goal achievement (Judge et al., 2004; Rafferty & Griffin, 2006; Rowold & Rohmann, 2009).

Maslow's hierarchy of needs emphasizes treating employees as humans with individual desires, and supportive leadership addressing these needs positively affects performance (Abdel-Halim, 1982; Aziri, 2011). Key supportive behaviors include providing motivation, fostering innovation, ensuring fairness, and recognizing abilities (Jabbar & Abid, 2014). These behaviors are crucial for motivating employees in implementing green HRM practices, creating environments conducive to green creativity and improved green performance (Elrehail et al., 2018). Shayegan et al. (2022) highlighted that supportive leadership mediates the relationship between green HR practices and organizational performance, with transformational leadership fostering supportive behaviors that enhance employee engagement and sustainability outcomes.

H4: Supportive leadership behavior moderates the relationship between green human resource management and human resource performance.

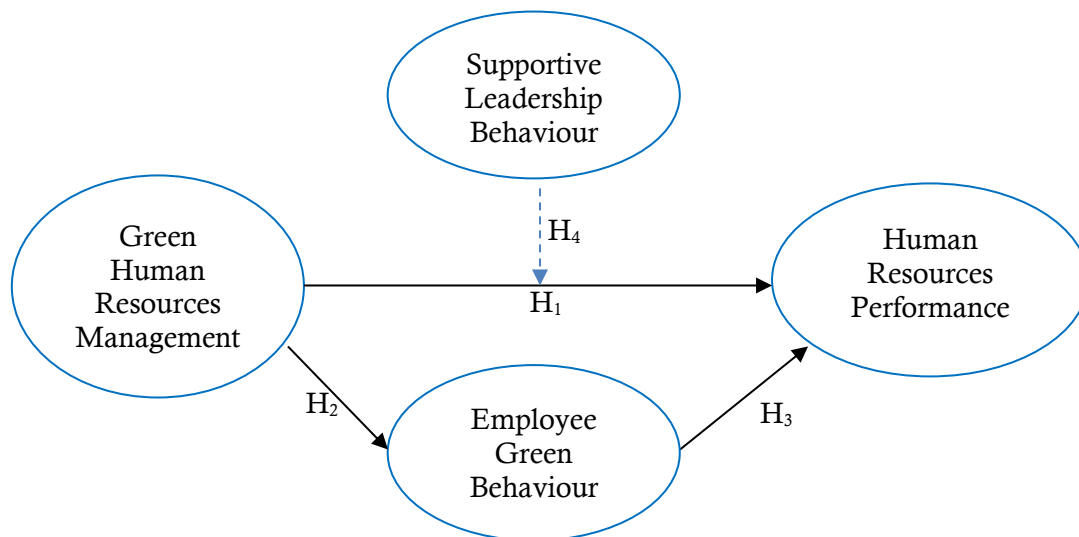


Figure 1. Conceptual Model

Figure 1 illustrates the conceptual model: Green Human Resource Management (GHRM) directly influences human resources performance (H1) and employee green behaviour (H2). Employee green behaviour directly affects human resources performance (H3). Supportive leadership behavior serves as a moderating factor in the connection between GHRM practices and human resource performance (H4).

RESEARCH METHODS

This study employed a quantitative research method using Structural Equation Modeling (SEM) as the primary analytical approach. A total of 134 workers from the Central Bureau of Statistics in North Sumatra Province were selected as the study sample, consisting of 6 echelon III officials, 20 echelon IV officials, 94 staff and functional officials, and 14 government employees who are not civil servants. The research examined four main variables: human resource performance, supportive leadership behavior, green employee behavior, and green human resource management. Data were collected through

a survey questionnaire using a ten-point rating scale (1 = strongly disagree, 10 = strongly agree), as this measurement approach demonstrates higher effectiveness in identifying construct validity within measurement and structural models (Awang et al., 2016).

Hypothesis testing followed the SEM procedure, which typically consists of five key stages: model specification, model identification, model estimation, model evaluation, and model refinement. Each stage involves analytical decisions that influence subsequent steps, where issues arising earlier in the process may compromise the validity of later decisions (McDonald & Ho, 2002; Chin et al., 2008). The analysis was performed using SPSS 25.0 and AMOS 26.0 software, allowing for model testing and hypothesis evaluation.

The measurement of the study variables was adapted from established literature. Green human resource management was measured using indicators related to the provision of green-supporting facilities, employee training and development on environmental initiatives, and the installation of environmental reminder signboards (Renwick et al., 2013; Ahmad, 2015; Jia et al., 2018). Green employee behavior focused on practices such as energy saving, water conservation, reduced paper usage, recycling, and maintaining environmental hygiene within the workplace (Norton et al., 2015; Kim et al., 2019). Human resource performance was assessed through employees' work quality, punctuality, cooperation, and creativity (Guest, 1997). Supportive leadership behavior included providing motivation, encouraging innovation, communicating organizational vision and mission, and giving appreciation to employees (Jabbar & Abid, 2014; Singh et al., 2020).

RESULTS

Google Forms was used to distribute the questions, allowing each respondent to submit their answers via personal email. Table 1 presents the demographic characteristics of the study respondents. By gender, the majority are female (55.6%), with males comprising 44.4%. In terms of age, the largest group is aged 31–40 years (45.2%), followed by 41–50 years (27.4%), indicating predominance within the productive working-age range. Regarding educational attainment, the highest proportion holds a bachelor's or applied bachelor's degree at 48.4%, followed by master's degree holders at 26.6%, reflecting a robust educational foundation. Tenure-wise, most respondents have 11–20 years of service (44.4%), followed by 21–30 years (29.8%), with only 3.2% exceeding 30 years, underscoring substantial organizational experience. Employment status shows the majority are civil servants (91.1%), with non-civil servants at 8.9%. These demographics indicate a sample dominated by experienced, well-educated, and stable civil servants, thereby enhancing the reliability of responses for analyzing green human resource management practices and employee performance in the public sector.

Table 1. Respondent Demographics

Respondent Demographics	Information	Frequency	Percentage (%)
Gender	Male	55	44.4
	Female	69	55.6
Age	21 – 30 years	10	8.1
	31 – 40 years	56	45.2
	41 – 50 years	34	27.4
	51 – 60 years	24	19.4
Last Education	High School (SLTA/SMK)	17	13.7
	D1	1	0.8
	D3	13	10.5
	Bachelor (S1/D4)	60	48.4
Years of service	Master (S2)	33	26.6
	0 – 10 years	28	22.6
	11 – 20 years	55	44.4
	21 – 30 years	37	29.8
Job-Status	> 30 years	4	3.2
	Civil Servant	113	91.1

Respondent Demographics	Information	Frequency	Percentage (%)
	Non-Civil Servant	11	8.9

Table 2, generated using SPSS 25.0, reveals a mean GHRM score of 8.16, indicating positive employee perceptions of GHRM implementation in public agencies, with respondents rating it high (8.75) due to visible integration of green practices in daily operations. The highest indicator is water conservation (9.04), while paper waste recycling is the lowest (8.46). The SSB variable averages 8.01 (high), reflecting favorable responses to supervisory behaviors in policy enforcement, with supporting innovation scoring highest (8.37) and giving applause lowest (7.77).

Table 2. Descriptive Statistic

Variable	Indicator	Mean	Standard Deviation	Interpretation
Green Human Resources Management	Provide a friendly support facilities environment	8.19	0.969	Average value = 8.16 (high)
	Training and development	8.37	0.958	
	Installing a signboard as a reminder for employees	8.26	0.995	
	Awards	7.82	1.082	
Employee Green Behavior	Energy-saving behavior	8.91	0.874	Average score = 8.75 (high)
	Water-saving behavior	9.04	0.800	
	Behavior to reduce paper use	8.46	0.974	
	The behavior of recycling paper waste	7.94	1.015	
	Caring behavior for environmental cleanliness	8.94	0.865	
Supportive Leadership Behavior	Giving motivation	7.98	1.115	Average value = 8.01 (high)
	Support innovation	8.37	0.941	
	Transfer vision and mission	7.90	0.935	
Human Resource Performance	Give Applause	7.77	1.209	Average value = 8.54 (high)
	Work quality	8.76	0.840	
	Punctuality	8.59	0.846	
	Cooperation	8.75	0.833	
	Creativity	8.54	0.978	

The high mean score for supportive leadership behavior underscores the critical role of leaders in supervising and ensuring the success of management policy implementation in public agencies, while also demonstrating leadership commitment to employee acceptance, thereby enhancing performance. The human resource performance variable yields a high mean of 8.54, reflecting positive employee self-assessments of performance in public institutions, with work quality scoring highest (8.76) and creativity lowest (8.05).

Cronbach's alpha is used to calculate the reliability coefficient of measuring instruments in this study (Taber, 2018). Based on Table 3, Cronbach's Alpha values ranged from 0.789 to 0.859. The Cronbach Alpha threshold value is usually seen as ≥ 0.70 or > 0.70 or an acceptable value of 0.7 or 0.6. (van Griethuijsen et al., 2015). The validity test in this study is based on the output of processing results using AMOS 26.0, which is a confirmatory factor analysis. The indicators for each variable are considered valid if their standardized loadings are ≥ 0.5 .

Table 3. Standardized Regression Weights and Reliability Test

Variable	Indicator	Estimates	P-Values	Cronbach's Alpha	Std. Value
Green Human Resources Management (GHRM)	G1	0.799	< 0.05	0.824	0.6
	G2	0.750	< 0.05		
	G3	0.806	< 0.05		
	G4	0.607	< 0.05		
Employee Green Behavior (EGB)	E1	0.653	< 0.05	0.797	0.6
	E2	0.591	< 0.05		
	E3	0.626	< 0.05		

Variable	Indicator	Estimates	P-Values	Cronbach's Alpha	Std. Value
Supportive Leadership Behavior (SLB)	E4	0.570	< 0.05	0.789	0.6
	E5	0.607	< 0.05		
	E6	0.718	< 0.05		
	S1	0.707	< 0.05		
	S2	0.698	< 0.05		
	S3	0.673	< 0.05		
Human Resource Performance (HRP)	S4	0.720	< 0.05	0.859	0.6
	H1	0.874	< 0.05		
	H2	0.892	< 0.05		
	H3	0.761	< 0.05		
	H4	0.641	< 0.05		

Table 3 displays Confirmatory Factor Analysis (CFA) results for the measurement model constructs, with standardized regression weights showing indicator-latent variable relationships. All indicators exceeded the 0.5 loading threshold, confirming validity and reliability: GHRM (0.607–0.806), employee green behavior (0.570–0.718), supportive leadership behavior (0.673–0.720), and human resource performance (0.641–0.892). All p-values ($p < 0.05$) indicate statistical significance, affirming each indicator's substantial contribution to its construct. These findings establish strong convergent validity, supporting the measurement model's robustness for subsequent structural analysis.

Table 4. Assessment of Normality (Group number 1)

Variable	Min	Max	Skew	CR	Kurtosis	CR
int	550.000	1520.000	0.07	0.316	0.067	0.153
H4	5.000	10.000	-0.201	-0.916	0.444	1.009
H3	7.000	10.000	-0.016	-0.072	-0.758	-1.722
H2	6.000	10.000	-0.24	-1.089	-0.137	-0.312
H1	6.000	10.000	-0.266	-1.209	-0.092	-0.209
E1	7.000	10.000	-0.267	-1.215	-0.829	-1.884
E2	7.000	10.000	-0.263	-1.197	-0.905	-2.057
E3	6.000	10.000	-0.283	-1.288	-0.378	-0.86
E4	6.000	10.000	0.066	0.301	-0.443	-1.008
E5	7.000	10.000	-0.275	-1.251	-0.926	-2.104
E6	7.000	10.000	-0.214	-0.974	-0.941	-2.138
G1	6.000	10.000	0.145	0.659	-0.452	-1.028
G2	6.000	10.000	-0.241	-1.097	0.043	0.098
G3	5.000	10.000	-0.385	-1.748	0.185	0.42
G4	5.000	10.000	0.086	0.392	-0.001	-0.003
S4	4.000	10.000	-0.337	-1.531	0.199	0.453
S3	5.000	10.000	-0.03	-0.136	0.132	0.3
S2	5.000	10.000	-0.387	-1.762	0.85	1.931
S1	5.000	10.000	-0.376	-1.71	0.066	0.15
Multivariate					31.143	6.138

Data is said to be normally distributed if the critical ratio of skewness and kurtosis is in the range between -2.58 and 2.58 at a significance level of 0.01 (1%) (Ullman, 2006). Table 4 shows the results of the data normality test, and it is known that the Critical Ratio (CR) value of the skewness and kurtosis is in the range between -2.58 and 2.58 at a significance level of 0.01 (1%), so it can be concluded that all indicators of the data are normally distributed, and hypothesis testing can be continued. Figure 2 shows that we used hypothesis testing with Structural Equation Modeling (SEM) analysis using the AMOS SPSS 26.0 program.

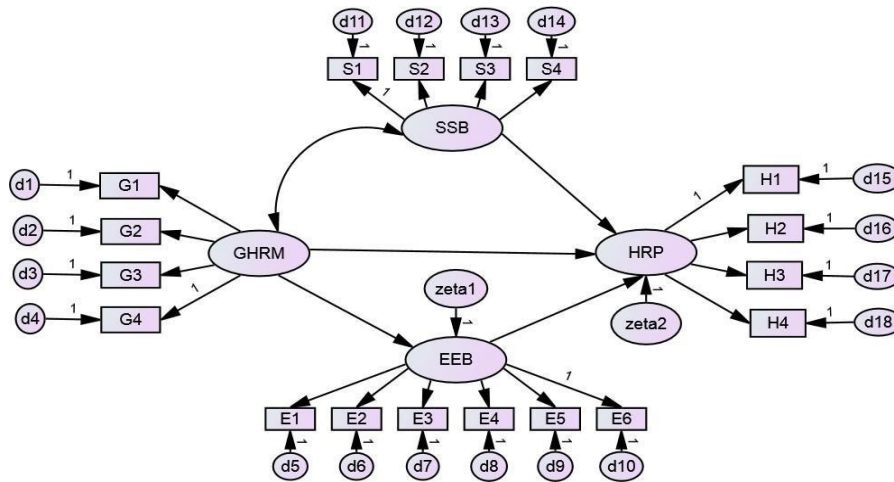


Figure 2. Formation of SEM with AMOS Graphics.

This research uses Ping's (1995) method to measure moderating in SEM. Ping stated that a single indicator can be used as an indicator of the moderating variable, where the indicator is the product of the multiplication of the exogenous latent indicator by the indicator of the moderator variable. Outliers are extreme or atypical values that can reduce and distort the information in a data set. Outlier detection is performed to see univariate outliers and multivariate outliers. To see multivariate outliers, one looks at the value of the Mahalanobis distance. If the chi-square value is contrasted with the multivariate outlier value, the value is higher. Then a multivariate outlier problem occurs (Ghorbani, 2019; Wada, 2020). The greatest value for the Mahalanobis distance is 52.969, and we got a chi-square value of 263.958. Thus, it can be said that there is no multivariate outlier issue in this study Table 5.

Table 5. Observations Farthest from the Centroid (Mahalanobis distance) (Group number 1)

Observation Number	Mahalanobis Distance-Squared	p1	p2
90	52.969	0.000	0.006
18	37.855	0.006	0.179
68	37.538	0.007	0.053
72	35.870	0.011	0.048
100	34.261	0.017	0.063
67	33.969	0.019	0.029
9	32.500	0.027	0.055
97	31.590	0.035	0.068

Model fit determines the extent to which the structural equation model fits the sample data (Schermelleh et al., 2003). The Goodness of Fit Model test was carried out using SEM in stages. Suppose the resulting model is not fit. Modifications can be made to obtain a fit model (Chin et al. 2008; Bagozzi & Yi, 2012).

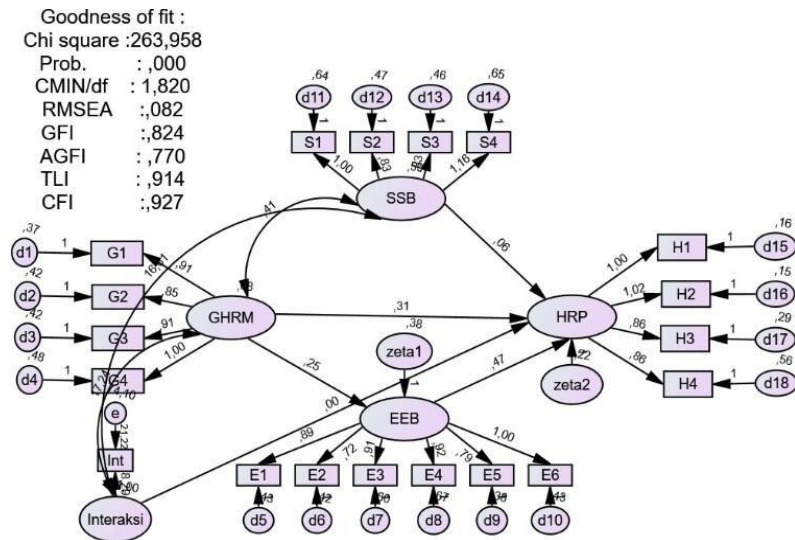


Figure 3. Results Test Chi-Square

Figure 3 shows some of the goodness-of-fit criteria from the existing model that is not yet fit. Chi-square value (χ^2) 263.958 is still not fit. The probability level value is still very small, while the expected value must be ≥ 0.05 . These results indicate that there is still a need to revise the existing model by developing an existing theory to form a new model. (Chin et al. 2008; Bagozzi & Yi, 2012).

Respecification of the model must be carried out if the model produced by the goodness-of-fit test is not feasible. Model respecification is done by modifying the model to suit the data. Respecification of this model is carried out by using diagnostic measures and theories that underlie the respecification of the model. The use of SPSS AMOS 26.0 to respecify the model, and the results obtained are as follows, Figure 4.

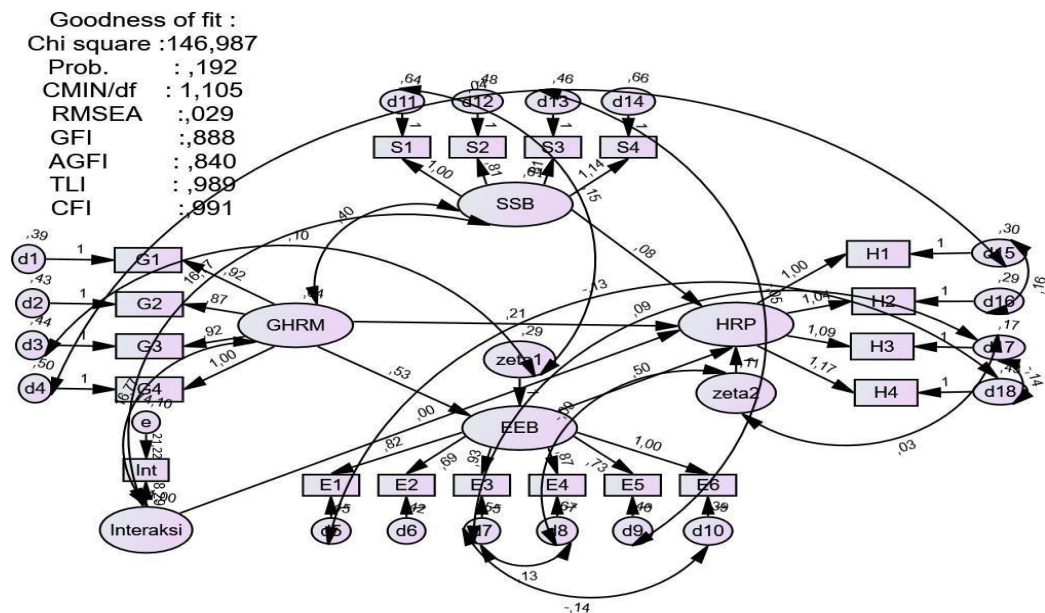


Figure 4. Results Respecification 2nd Model

After the model respecification process was performed using AMOS 26.0 to improve the model's compatibility with the observed data. the next step was to evaluate the model fit. The assessment was conducted using several goodness-of-fit indices, with the results summarized in Table 6.

Table 6. Results of the Goodness of Fit Model Test

Index	Cut Off Value	Result	Evaluation
Chi-Square (χ^2)	< 150.989 (Jöreskog & Sörbom, 1993)	146.987	fit
Probability levels	> 0.05 (Jöreskog & Sörbom, 1993)	0.192	fit
CMIN/df	≤ 2.00 (Arbuckle, 1997)	1.105	fit
RMSEA	≤ 0.08 (Browne & Cudeck, 1992)	0.029	fit
GFI	≥ 0.90 (Jöreskog & Sörbom, 1993)	0.888	marginal
AGFI	≥ 0.90 (Hair et al., 1995; Hulland et al., 1996)	0.840	marginal
TLI	≥ 0.95 (Hair et al., 1995)	0.989	fit
CFI	≥ 0.90 (Hooper et al., 2008)	0.991	fit

Table 6 shows that the respecified model achieves an acceptable fit, with most indices meeting cut-off values. Chi-square (146.987) is below 150.989, probability (0.192) exceeds 0.05, CMIN/df (1.105) is under 2.00, and RMSEA (0.029) is well below 0.08, indicating good parsimony and approximation. TLI (0.989) and CFI (0.991) exceed 0.95 and 0.90, respectively, confirming excellent fit. Although GFI (0.888) and AGFI (0.840) are marginally below 0.90, they remain acceptable for complex models. These results confirm that the model provides a satisfactory representation of the data and meets the statistical requirements for hypothesis testing.

Table 7. Regression Weights: (Group number 1 - Default model)

Structural Model	Estimates	SE	CR	P	Label
EGB <--- GHRM	0.532	0.087	6.110	< 0.05	par_17
HRP <--- GHRM	0.214	0.101	2.113	0.035	par_15
HRP <--- SLB	0.079	0.081	0.982	0.326	par_16
HRP <--- EGB	0.499	0.117	4.266	< 0.05	par_18
HRP <--- Interaction	0.001	0.000	2.939	0.003	par_20
S1 <--- SLB	1.000				
S2 <--- SLB	0.810	0.090	9.028	< 0.05	par_1
S3 <--- SLB	0.813	0.089	9.153	< 0.05	par_2
S4 <--- SLB	1.138	0.118	9.635	< 0.05	par_3
G4 <--- GHRM	1.000				
G3 <--- GHRM	0.923	0.091	10.169	< 0.05	par_4
G2 <--- GHRM	0.869	0.087	9.979	< 0.05	par_5
G1 <--- GHRM	0.920	0.089	10.359	< 0.05	par_6
E6 <--- EGB	1.000				
E5 <--- EGB	0.735	0.118	6.243	< 0.05	par_7
E4 <--- EGB	0.867	0.150	5.774	< 0.05	par_8
E3 <--- EGB	0.933	0.161	5.784	< 0.05	par_9
E2 <--- EGB	0.686	0.114	6.023	< 0.05	par_10
E1 <--- EGB	0.825	0.126	6.544	< 0.05	par_11
H1 <--- HRP	1.000				
H2 <--- HRP	1.038	0.080	12.985	< 0.05	par_12
H3 <--- HRP	1.089	0.130	8.362	< 0.05	par_13
H4 <--- HRP	1.170	0.162	7.232	< 0.05	par_14
int <--- Interaction	8.289				
int <--- e	21.221				

Table 7 shows that from the research results, it is known that the CR value for the impact of GHRM on HR performance is 2.113 ($p = 0.035 < 0.05$), H1 is accepted, meaning that GHRM has a positive impact on improving HR performance. The CR value for the impact of GHRM on green employee behavior is 6.110 ($p = 0.000 \leq 0.05$), H₂ is accepted, meaning that GHRM has a positive impact on green employee behavior. The CR value for the impact of green employee behavior on HR performance is 4.266 ($p = 0.000 \leq 0.05$), H₃ is accepted, meaning that green employee behavior has a positive impact on performance HR. The CR value for the impact of supportive leadership behavior on HR performance is 2.939 ($p = 0.003 \leq 0.05$), and the CR value for the correlation between GHRM and supportive leadership behavior is 4.099 ($p = 0.000 \leq 0.05$), H₄ is accepted,

meaning that supportive leadership behavior moderates the relationship between GHRM and HR performance.

DISCUSSION

This study confirms that the implementation of Green Human Resource Management (GHRM) in Indonesia's public service sector significantly enhances both green employee behavior and human resource performance. with supportive leadership behaviors demonstrated to strengthen the relationship between GHRM initiatives and employee outcomes. The evidence underscores that GHRM not only improves organizational performance through environmentally focused HR practices but also catalyzes a transformation in employee conduct towards greater ecological responsibility. The moderating effect of supportive leadership in the integration of GHRM fosters a work climate conducive to sustained innovation and collaboration.

These findings are highly aligned with recent literature from the past five years. Ahmad (2025) highlights the increasing trend of GHRM adoption and its capacity to boost productivity and employee retention through sustainable frameworks that incorporate green behavioral evaluations into performance appraisals. Mengwei (2024) found that High-Performance Work Systems (HPWS) contribute to more structured and effective GHRM adoption, reinforcing the linkages among organizational policy, work environment, and employee outcomes. Similarly, Bangwal (2025) shows that every element of human resource management recruitment, training, appraisal, and incentives can be optimized through environmental perspectives. Cultivating a workforce with a deep-rooted sustainability mindset and the ability to drive broad-based organizational performance improvements.

Additionally, contemporary literature accentuates the critical role of leadership commitment in facilitating green organizational transformation. Observations from 2024-2025 point to the growing application of green and supportive leadership concepts across public and educational sectors to ensure employees not only adhere to environmentally conscious practices but are also empowered to innovate amidst contemporary managerial challenges (Abdo 2025; Rahmayanti. 2025). Recent research Febrian (2025) further emphasizes that GHRM success is contingent upon the integration of green training, reward systems, and work cultures that elevate green behavior as an operational norm within public institutions.

When compared with earlier studies such as Kim et al. (2019) and Sabokro et al. (2021) which identified green behavior as a mediating mechanism between GHRM and organizational performance. The present study strengthens the argument that green behavior not only bridges but actively propels advancements in work quality and innovation within public organizations. Studies by Miah (2024) and Bangwal (2025) also underscores the need for ongoing evaluation and strategic leadership to maximize the positive outcomes of GHRM across policy, management, and HR development domains.

This research makes a substantial contribution to both the theoretical and practical frameworks of GHRM, particularly in Indonesia's public sector, which has, until recently, attracted limited attention in the international literature. The results also highlight opportunities for future research to employ qualitative approaches in order to better capture the dynamics of green behavior, organizational culture, and leadership effectiveness in supporting sustainable GHRM implementation.

CONCLUSION

The study conducted at the Central Bureau of Statistics of North Sumatra Province demonstrates that the implementation of Green Human Resource Management (GHRM) plays a crucial role in enhancing employee performance. The adoption of GHRM policies not only improves performance but also fosters environmentally responsible behavior among employees, reflecting a growing awareness of sustainability in the workplace. The findings indicate that the more effectively GHRM is managed, the greater its impact on environmental awareness and performance improvement. Moreover, supportive

leadership behavior acts as a moderating factor that strengthens the relationship between GHRM implementation and employee performance. Leaders who actively provide direction and effective supervision ensure the optimization of GHRM practices, particularly in enhancing performance within the public service sector.

The managerial implications highlight that achieving performance excellence through GHRM requires a well-structured program accompanied by clear communication so that employees fully understand its goals and objectives. Innovations in promoting GHRM principles are necessary to encourage continuous green behavioral change. Both in the workplace and in daily life. Recognition and rewards for green employee behavior should be implemented as a motivational strategy to inspire others to adopt similar environmentally conscious practices. However, both the influence of GHRM on performance and the moderating effect of supportive leadership are statistically significant. Their effect sizes are relatively small. This may be attributed to methodological limitations, as the data were collected solely through closed-ended questionnaires without in-depth interviews, which restricted the richness and comprehensiveness of participants' responses. Future studies are recommended to incorporate qualitative or mixed-method approaches to obtain deeper insights into employees' environmental attitudes and motivations. Further research may also examine additional moderating variables such as green organizational culture or environmental leadership styles. Expanding the sample to other public service agencies or private sector organizations would improve generalizability.

REFERENCES

- [1] Abdel-Halim, A. A. (1982). Social support and managerial affective responses to job stress. *Journal of Organizational Behavior*, 3(4), 281–295.
- [2] Abdo, S. S. (2025). Managerial competencies for effective green HRM strategies. *Business Strategy and Environment*, 34(2), 313–329.
- [3] Afsar, B., Badir, Y. F., Saeed, B. Bin, & Hafeez, S. (2017). Transformational and transactional leadership and employee's entrepreneurial behavior in knowledge-intensive industries. *The International Journal of Human Resource Management*, 28(2), 307–332.
- [4] Ahmad, S. (2015). Green human resource management: Policies and practices. *Cogent Business & Management*, 2(1), 103–115.
- [5] Ahmad, S. (2025). Green human resource management: analyzing trends using scopus database. *Journal of Environmental Management*, 233(2), 58–71.
- [6] Al-Swidi, A. K., Gelaidan, H. M., & Saleh, R. M. (2021). The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance. *Journal of Cleaner Production*, 316(2), 128–132.
- [7] Anjum, N., Rahaman, M. S., Choudhury, M. I., & Rahman, M. M. (2022). An Insight into Green HRM practices for sustainable workplace in the banking sector of Bangladesh: The role of electronic HRM. *Journal of Business Strategy Finance and Management*, 4(1), 66–80.
- [8] Arbuckle, J. (1997). *Amos users' guide version 3.6*. Chicago: Smallwaters Corporation.
- [9] Assyofa, A. R., Rani, A. M., & Yuliawati, T. (2020). Green behaviors factors on green human resources management practice on the employees of "the first movers on sustainable banking" in indonesia. *Proceedings of the 2nd Social and Humaniora Research Symposium (SoRes 2019)*, 409(2019), 102–106.
- [10] Awang, Z., Afthanorhan, A., & Mamat, M. (2016). The likert scale analysis using parametric based Structural Equation Modeling (SEM). *Computational Methods in Social Sciences*, 4(1), 13–21.
- [11] Aziri, B. (2011). Job satisfaction: a literature review. *Management Research and Practice*, 3(4), 77–86.
- [12] Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, 40(1), 8–34.
- [13] Bangwal, D. (2025). Green HRM, employee pro-environmental behavior, and organizational outcomes. *Journal of Cleaner Production*, 322(2), 112–113.
- [14] Bansal, P., & Roth, K. (2000). Why companies go green: a model of ecological responsiveness. *Academy of Management Journal*, 43(4), 717–736.
- [15] Bourini, I., Jahmani, A., Mumtaz, R., & Al-Bourini, F. A. (2019). Investigating the managerial practices' effect on employee-perceived service quality with the moderating role of supportive leadership behavior. *European Research on Management and Business Economics*, 25(1), 8–14.
- [16] Bowolaksono, A., Kholis, N., Wardani, W. K., Pradipta, E., Lestari, F., Patria, M. P., & Priambodo, R. (2021). Go green program as an effort to enhance UI civitas awareness towards

- sustainable campus. *IOP Conference Series: Materials Science and Engineering*, 1098(5), 520-580.
- [17] Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, 21(2), 230-258.
- [18] Busse, M., & Menzel, S. (2014). The role of perceived socio-spatial distance in adolescents' willingness to engage in pro-environmental behavior. *Journal of Environmental Psychology*, 40(4), 412-420.
- [19] Caillier, J. G. (2014). Toward a better understanding of the relationship between transformational leadership, public service motivation, mission valence, and employee performance. *Public Personnel Management*, 43(2), 218-239.
- [20] Caliskan, A. O., & Esen, E. (2019). Green human resource management and environmental sustainability. *Pressacademia*, 9(9), 58-60.
- [21] Chaudhary, R. (2020). Green human resource management and employee green behavior: an empirical analysis. *Corporate Social Responsibility and Environmental Management*, 27(2), 630-641.
- [22] Chih Ho, J. (2017). The effect of supervisor support on employee voice behavior based on the self-determination theory: The moderating effect of impression management motive. *Journal of Entrepreneurship & Organization Management*, 6(1), 1-8.
- [23] Chin, W. W., Peterson, R. A., & Brown, S. P. (2008). Structural equation modeling in marketing: some practical reminders. *Journal of Marketing Theory and Practice*, 16(4), 287-298.
- [24] Darvishmotevali, M., & Altinay, L. (2022). Green HRM, environmental awareness and green behaviors: The moderating role of servant leadership. *Tourism Management*, 88(6), 104-108.
- [25] de Leeuw, A., Valois, P., Ajzen, I., & Schmidt, P. (2015). Using the theory of planned behavior to identify key beliefs underlying pro-environmental behavior in high-school students. *Journal of Environmental Psychology*, 42(2), 128-138.
- [26] Deichmann, D., & Stam, D. (2015). Leveraging transformational and transactional leadership to cultivate the generation of organization-focused ideas. *The Leadership Quarterly*, 26(2), 204-219.
- [27] Elmagrhi, M. H., Ntim, C. G., Elamer, A. A., & Zhang, Q. (2019). A study of environmental policies and regulations, governance structures, and environmental performance: The role of female directors. *Business Strategy and the Environment*, 28(1), 206-220.
- [28] Elrehail, H., Emeagwali, O. L., Alsaad, A., & Alzghoul, A. (2018). The impact of transformational and authentic leadership on innovation in higher education. *Telematics and Informatics*, 35(1), 55-67.
- [29] Emilisa, N., Michelle, & Lunarindiah, G. (2020). Consequences of green human resource management: perspective of professional event organizer employees in Jakarta. *Review of Integrative Business and Economics Research*, 9(1), 361-372.
- [30] Environment Performance Index. (2022). *2022 EPI results*. New Heaven: Yale Center for Environmental Law & Policy (YCELP)
- [31] Febrian, W. D. (2025). Model green human resource management: Concept and implementing. *Siber Journal of Advanced Multidisciplinary*, 2(4), 403-416.
- [32] Fitriyah, N., Sukasmono, T., Qomariyah, N., & Fawaid, M. (2024). The role of leadership style and motivation in improving employee performance. *Jurnal Ilmiah Manajemen Kesatuan*, 12(5), 1959-1968.
- [33] Ghorbani, H. (2019). Mahalanobis distance and its application for detecting multivariate outliers. *Facta Universitatis (NIS)*, 34(3), 583-595.
- [34] Guest, D. E. (1997). Human resource management and performance: A review and research agenda. *The International Journal of Human Resource Management*, 8(3), 263-276.
- [35] Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate data analysis*. New Jersey: Prentice-Hall.
- [36] Hameed, Z., Khan, I. U., Islam, T., Sheikh, Z., & Naeem, R. M. (2020). Do green HRM practices influence employees' environmental performance? *International Journal of Manpower*, 41(7), 1061-1079.
- [37] Hastuti, D. T., & Muafi, M. (2022). The influence of organizational environmental culture on employee performance mediated by green human resource management and job satisfaction. *International Journal of Business Ecosystem & Strategy*, 4(1), 24-36.
- [38] Holten, A.-L., & Brenner, S. O. (2015). Leadership style and the process of organizational change. *Leadership & Organization Development Journal*, 36(1), 2-16.
- [39] Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, 6(1), 53-60.
- [40] House, R. J. (1971). A path goal theory of leader effectiveness. *Administrative Science Quarterly*, 16(3), 321-339.
- [41] Hsiao, T.-Y., & Chuang, C.-M. (2016). Creating shared value through implementing green practices for star hotels. *Asia Pacific Journal of Tourism Research*, 21(6), 678-696.
- [42] Hulland, J., Chow, Y. H., & Lam, S. (1996). Use of causal models in marketing research: A review. *International Journal of Research in Marketing*, 13(2), 181-197.
- [43] Islam, M. A., Jantan, A. H., Yusoff, Y. M., Chong, C. W., & Hossain, M. S. (2020). Green human resource management (ghrm) practices and millennial employees' turnover intentions in tourism industry in Malaysia. *Global Business Review*, 7(3), 1-21.
- [44] Jabbar, M. H., & Abid, M. (2014). GHRM: motivating employees towards organizational

- environmental performance. *MAGNT Research Report*, 2(4), 267–278.
- [45] Jia, J., Liu, H., Chin, T., & Hu, D. (2018). The continuous mediating effects of GHRM on employees' green passion via transformational leadership and green creativity. *Sustainability*, 10(9), 3237–3245.
- [46] Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Chicago: Lawrence Erlbaum Associates.
- [47] Judge, T. A., Piccolo, R. F., & Ilies, R. (2004). The validity of consideration and initiating structure in leadership research. *Journal of Applied Psychology*, 89(1), 36–51.
- [48] Khairunnisak, K., & Suharnomo, S. (2022). The effect of perceived green human resources management on perceived environmental performance. *E3S Web of Conferences*, 359(1), 20–31.
- [49] Kim, Y. J., Kim, W. G., Choi, H.-M., & Phetvaroon, K. (2019). The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. *International Journal of Hospitality Management*, 76(4), 83–93.
- [50] Lasrado, F., & Zakaria, N. (2020). Go green! Exploring the organizational factors that influence self-initiated green behavior in the United Arab Emirates. *Asia Pacific Journal of Management*, 37(3), 823–850.
- [51] Lu, H., Liu, X., Chen, H., Long, R., & Yue, T. (2017). Who contributed to “corporation green” in China? A view of public- and private-sphere pro-environmental behavior among employees. *Resources, Conservation and Recycling*, 120(2), 166–175.
- [52] Maamoun, N. (2019). The Kyoto protocol: Empirical evidence of a hidden success. *Journal of Environmental Economics and Management*, 95(3), 227–256.
- [53] McDonald, R. P., & Ho, M.-H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7(1), 64–82.
- [54] Mengwei, Li. (2024). Exploring the antecedents of green human resource management: HPWS and adoption. *Journal of Business Research*, 219(8), 247–259.
- [55] Merritt, A., & Stubbs, T. (2022). Correction to: Incentives to promote green citizenship in UK transition towns. *Development*, 65(2–4), 246–246.
- [56] Miah, M. (2024). A systematic literature review on green human resource management over the past decade. *Cogent Business & Management*, 11(1), 43–47.
- [57] Moktadir, M. A., Ali, S. M., Kusi-Sarpong, S., & Shaikh, M. A. A. (2018). Assessing challenges for implementing Industry 4.0: Implications for process safety and environmental protection. *Process Safety and Environmental Protection*, 117(8), 730–741.
- [58] Nainggolan, Y., & Harsoyo, T. (2023). The effect of green purchase attitudes, subjective norms, perceived behavioral control, environmental concern on product purchasing decisions. *Jurnal Ilmiah Manajemen Kesatuan*, 11(3), 1–14.
- [59] Nging, T. K., & Yazdanifard, R. (2015). The general review of the leader's self enhancement on the organization. *International Journal of Management, Accounting and Economics*, 2(12), 1497–1507.
- [60] Nisa, M. U., Mahmood, A., Sandhu, M. A., Kanwal, S., & Iqbal, J. (2016). The effect of green HRM practices on sustainability: Evidence from manufacturing companies in Pakistan. *Pakistan Journal of Social Sciences (PJSS)*, 36(1), 177–188.
- [61] Norton, T. A., Parker, S. L., Zacher, H., & Ashkanasy, N. M. (2015). Employee green behavior. *Organization & Environment*, 28(1), 103–125.
- [62] Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39(3), 607–634.
- [63] Opatha, H. H. D. N. P., & Arulrajah, A. A. (2014). Green human resource management: Simplified general reflections. *International Business Research*, 7(8), 101–112.
- [64] Paulet, R., Holland, P., & Morgan, D. (2021). A meta-review of 10 years of green human resource management: Is Green HRM headed towards a roadblock or a revitalisation? *Asia Pacific Journal of Human Resources*, 59(2), 159–183.
- [65] Ping, R. A. (1995). A parsimonious estimating technique for interaction and quadratic latent variables. *Journal of Marketing Research*, 32(3), 336–347.
- [66] Ping, R. A. (1996). Estimating latent variable interactions and quadratics: The state of this art. *Journal of Management*, 22(1), 163–183.
- [67] Ponzi, D. (2019). *The business of greening: Policy measures for green business development in Asia (ADB Sustainable Development Working Paper Series)*. Manila: Asian Development Bank.
- [68] Rafferty, A. E., & Griffin, M. A. (2006). Refining individualized consideration: Distinguishing developmental leadership and supportive leadership. *Journal of Occupational and Organizational Psychology*, 79(1), 37–61.
- [69] Rahmayanti, R. S. (2025). Enhancing employee performance through leadership patterns. *International Journal of Environmental and Social Science Management*, 5(2), 403–416.
- [70] Rawashdeh, A. M. (2018). The impact of green human resource management on organizational environmental performance in Jordanian health service organizations. *Management Science Letters*, 8(10), 1049–1058.
- [71] Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, 15(1), 1–14.
- [72] Rowold, J., & Rohmann, A. (2009). Transformational and transactional leadership styles, followers'

- positive and negative emotions, and performance in German nonprofit orchestras. *Nonprofit Management and Leadership*, 20(1), 41–59.
- [73] Roy, M., Boiral, O., & Paillé, P. (2013). Pursuing quality and environmental performance. *Business Process Management Journal*, 19(1), 30–53.
- [74] Rujie Qu., Janssen, O., & Shi, K. (2015). Transformational leadership and follower creativity: The mediating role of follower relational identification and the moderating role of leader creativity expectations. *The Leadership Quarterly*, 26(2), 286–299.
- [75] Sabokro, M., Masud, M. M., & Kayedian, A. (2021). The effect of green human resources management on corporate social responsibility, green psychological climate and employees' green behavior. *Journal of Cleaner Production*, 313(3), 127-133.
- [76] Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *MPR-Online*, 8(2), 23–74.
- [77] Schmidt, B., Loerbroks, A., Herr, R. M., Wilson, M. G., Jarczok, M. N., Litaker, D., Mauss, D., Bosch, J. A., & Fischer, J. E. (2014). Associations between supportive leadership and employees' self-rated health in an occupational sample. *International Journal of Behavioral Medicine*, 21(5), 750–756.
- [78] Shafaei, A., Nejati, M., & Mohd Yusoff, Y. (2020). Green human resource management. *International Journal of Manpower*, 41(7), 1041–1060.
- [79] Shayegan, S., Yavari, N., & Bazrkar, A. (2022). Human resource development practices and organizational performance: Examining the mediating role of transformational leadership style. *WPOM-Working Papers on Operations Management*, 13(2), 64–85.
- [80] Shoaib, M., Nawal, A., Zámečník, R., Korsakienė, R., & Rehman, A. U. (2022). Go green! Measuring the factors that influence sustainable performance. *Journal of Cleaner Production*, 366(2), 132-159.
- [81] Singh, S. K., Giudice, M. Del, Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, 150(5), 119-122.
- [82] Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3), 407–424.
- [83] Suharyati, Pambudi, S. H., Wibowo, J. L., & Pratiwi, N. I. (2019). *Indonesia Energy Outlook 2019*. Jakarta: Sekretariat Jenderal Dewan Energi Nasional.
- [84] Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273–1296.
- [85] Ullman, J. B. (2006). Structural equation modeling: Reviewing the basics and moving forward. *Journal of Personality Assessment*, 87(1), 35–50.
- [86] Unsworth, K. L., Dmitrieva, A., & Adriasola, E. (2013). Changing behaviour: Increasing the effectiveness of workplace interventions in creating pro-environmental behaviour change. *Journal of Organizational Behavior*, 34(2), 211–229.
- [87] van Griethuijsen, R. A. L. F., van Eijck, M. W., Haste, H., den Brok, P. J., Skinner, N. C., Mansour, N., Savran Gencer, A., & BouJaoude, S. (2015). Global patterns in students' views of science and interest in science. *Research in Science Education*, 45(4), 581–603.
- [88] Wada, K. (2020). Outliers in official statistics. *Japanese Journal of Statistics and Data Science*, 3(2), 669–691.
- [89] Yahaya, R., & Ebrahim, F. (2016). Leadership styles and organizational commitment: Literature review. *Journal of Management Development*, 35(2), 190–216.
- [90] Yong, J. Y., Yusliza, M., Ramayah, T., Chiappetta Jabbour, C. J., Sehnem, S., & Mani, V. (2020). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*, 29(1), 212–228.
- [91] Yuriev, A., Boiral, O., Francoeur, V., & Paillé, P. (2018). Overcoming the barriers to pro-environmental behaviors in the workplace: A systematic review. *Journal of Cleaner Production*, 182(2), 379–394.
- [92] Yusoff, Y. M., Nejati, M., Kee, D. M. H., & Amran, A. (2020). Linking green human resource management practices to environmental performance in hotel industry. *Global Business Review*, 21(3), 663–680.