



THE INFLUENCE OF GREEN HUMAN RESOURCE MANAGEMENT ON ORGANIZATIONAL CITIZENSHIP BEHAVIOR FOR THE ENVIRONMENT MEDIATED BY GREEN EMPLOYEE EMPOWERMENT IN MANUFACTURING COMPANIES

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Abstract

This study aims to examine the effect of Green Human Resource Management (GHRM) on Organizational Citizenship Behavior for the Environment (OCBE) with Green Employee Empowerment as a mediator variable. The research method used was quantitative with an explanatory survey approach. The sample consisted of 126 permanent employees working in manufacturing companies in Surabaya, selected using purposive sampling technique. Data collection was conducted through an online Likert-scale questionnaire distributed via WhatsApp groups for one week. The research instrument had been tested for validity and reliability with Cronbach's Alpha values for each variable above 0.86. Data analysis technique used path analysis with stepwise multiple regression approach and the Sobel test to confirm the significance of the mediation effect. The results showed that GHRM had a positive and significant effect on OCBE both directly and indirectly through Green Employee Empowerment. Green Employee Empowerment was proven to partially mediate the relationship between GHRM and OCBE with an indirect effect reaching 46.8 percent of the total effect. These findings indicate that employee empowerment is a key psychological mechanism explaining how GHRM practices are translated into voluntary pro-environmental behaviors in the workplace. This study recommends that companies not only implement GHRM practices procedurally but also actively create an environment that empowers employees to take green initiatives.

Keywords: green human resource management, green employee empowerment, organizational citizenship behavior for the environment, mediation, manufacturing company

Introduction

The issue of environmental sustainability has become an urgent global concern over the last two decades, driven by the escalating climate crisis, pollution, and ecosystem degradation that threaten human life. Various countries, including Indonesia, have committed to reducing carbon emissions and implementing environmentally friendly business practices through various policies and regulations (Bangsawan et al., 2025). As primary economic entities, companies are demanded not only to pursue financial profit but also to take responsibility for the environmental impact generated by their operations. This demand shifts the traditional management paradigm toward a greener approach, where human resources play a central role in implementing sustainability strategies (Preeti, 2023). Employees are no longer viewed merely as factors of production but as agents of change capable of driving the transformation toward more environmentally friendly operations (Patel, 2025). Therefore, understanding how companies can manage their human resources to support pro-environmental behavior is becoming increasingly crucial. This awareness of sustainability is fundamentally closely related to the organization's tactical steps in aligning HR governance and environmental policies to create sustainable operations while simultaneously boosting business productivity (Hariani et al., 2022). Such an approach is also viewed as capable of increasing a company's long-term value and competitiveness through the strengthening of internal capacities based on social and ecological concern (Mardikaningsih, 2018).

Green Human Resource Management (GHRM) has emerged as a response to this need, integrating sustainability principles into all human resource management functions (Din & Khan, 2025). GHRM encompasses various practices, ranging from recruitment and selection that prioritize candidates with environmental awareness, to training and development that equip employees with green competencies, performance appraisals that include environmental indicators, and compensation and reward systems that encourage pro-environmental behavior (Nguyet, 2025). Previous research has shown that the implementation of GHRM contributes to improved corporate environmental performance, reduced operational costs, and the strengthening of reputation and brand image in the eyes of stakeholders (Sachdeva, 2024). However, equally important is

how GHRM influences employees' voluntary behaviors beyond formal job descriptions, which in literature is known as Organizational Citizenship Behavior for the Environment (OCBE). These voluntary behaviors are highly valuable because they reflect employees' genuine initiative and commitment to sustainability, which is difficult to achieve through orders or rules alone (Mou et al., 2025). The implementation of this green-oriented management is also believed to strengthen overall organizational effectiveness because it unites business goals with the responsibility of nature conservation (Mardikaningsih, 2024a). Through this process, the development of environmental expertise and insights in the workplace becomes a primary capital in supporting the transition toward a healthier and more sustainable economic order (Mardikaningsih & Hariani, 2025).

Organizational Citizenship Behavior for the Environment (OCBE) refers to voluntary actions taken by employees to support environmental preservation efforts in the workplace, such as reducing paper usage, turning off unused electrical equipment, proposing innovative ideas for waste management, or encouraging coworkers to participate in recycling programs (Sukarman et al., 2025). This behavior is extra-role, meaning it is not explicitly required in formal job descriptions and is not directly linked to compensation or sanction systems. Nevertheless, OCBE contributes significantly to the success of corporate environmental programs because it reflects the internalization of green values by employees (Khalid et al., 2022). Employees who exhibit OCBE tend to be more creative, proactive, and possess a sense of ownership toward the future of the company's environment (Zhao, 2025). Companies need to understand which factors can encourage the emergence of OCBE among employees and how GHRM can be designed to facilitate such behavior. Furthermore, the impetus to act voluntarily is also strongly influenced by employees' perceptions of interactional justice with their superiors, which contributes to determining the strength of psychological bonds and reciprocal commitment within the organization (Darmawan & Mardikaningsih, 2025). Once these voluntary bonds are established, their contribution will positively impact the comfort of the work environment as well as the optimal achievement of individual performance in the long term (Eddine & Darmawan, 2022).

Although many studies have examined the direct relationship between GHRM and OCBE, there remains a gap in understanding regarding the psychological mechanisms that explain how GHRM practices are translated into voluntary employee behaviors. A fundamental question that has not been fully answered is through what process GHRM influences OCBE. Is the influence direct, or does it occur through mediating mechanisms such as empowerment, commitment, or employees' intrinsic motivation? Understanding these mechanisms is crucial because it will provide more specific guidance for managers in designing effective interventions. Without understanding mediating mechanisms, companies may misallocate resources toward GHRM practices that are statistically significant but substantively less impactful because their intermediary mechanisms are not functioning optimally. Limitations in understanding these psychological pathways are feared to hinder the development of human resource potential, which is genuinely needed to spur work efficiency and long-term loyalty to the company's vision of the future (Darmawan et al., 2020).

One of the most promising psychological mechanisms to explain the relationship between GHRM and OCBE is green employee empowerment. Empowerment refers to the employee's perception that they have sufficient authority, freedom, resources, and support to take pro-environmental initiatives in the workplace (Zhang et al., 2023). Employees who feel empowered tend to have a greater sense of control over their work, the belief that their actions will make a difference, and high intrinsic motivation to contribute. When GHRM practices such as green training, participation in decision-making, and delegation of authority are implemented well, employees will feel that the company trusts them and values their contribution toward sustainability goals. This sense of trust and appreciation then encourages employees to voluntarily perform pro-environmental behaviors beyond what is formally requested.

Research conducted by Popal and Khan (2025) in the Afghan health sector provides empirical evidence supporting the role of green employee empowerment as a mediator between GHRM and OCBE. Their study found that GHRM practices significantly increase levels of employee empowerment, which subsequently drives an increase in OCBE. These findings are in line with the Ability-

Motivation-Opportunity (AMO) framework, which states that employee performance is determined by the ability, motivation, and opportunity provided by the organization. GHRM provides opportunity through empowerment mechanisms, which then motivate employees to use their abilities in the form of OCBE.

Based on the background described above, there are several main problems that this research aims to answer. First, does GHRM have a positive effect on green employee empowerment? Second, does green employee empowerment have a positive effect on OCBE? Third, does green employee empowerment mediate the relationship between GHRM and OCBE? These problems are important to answer because they will provide a deeper understanding of the psychological mechanisms that transmit the influence of green human resource management practices into voluntary employee behaviors. The results of this study are expected to contribute to the development of GHRM theory, particularly in explaining the role of empowerment as a mediating mechanism.

In line with these issues, the main objective of this research is to empirically test the influence of GHRM on OCBE with green employee empowerment as a mediating variable. More specifically, this research aims to analyze the significance of the influence of GHRM on green employee empowerment, analyze the significance of the influence of green employee empowerment on OCBE, and analyze the significance of the mediating role of green employee empowerment in the relationship between GHRM and OCBE. The results of this research are expected to provide theoretical contributions to the development of GHRM and OCBE literature, as well as provide practical implications for human resource managers in designing effective employee empowerment programs to encourage pro-environmental behavior in the workplace.

Method

This research utilizes a quantitative approach with an explanatory research design, which is research that aims to explain causal relationships between variables through hypothesis testing (Soviadan,

2020). The population in this study consists of all employees working in manufacturing companies located in Surabaya and its surrounding areas. The established inclusion criteria are permanent employees with a minimum of one year of service, as it is assumed that employees with such tenure possess sufficient experience to evaluate Green Human Resource Management practices in their companies and are capable of accurately reporting their levels of empowerment and pro-environmental behavior. The population in this study is considered an infinite population, given the large number of manufacturing companies in Surabaya which are difficult to identify with certainty.

The sampling technique used is purposive sampling, where respondents are selected based on predetermined criteria, namely permanent employees of manufacturing companies in Surabaya with a minimum of one year of service. The minimum sample size in this study refers to the general rule in path analysis using the maximum likelihood method, which is a minimum of 100 to 150 respondents. This study targets 126 respondents to anticipate incomplete data or outliers. Data collection was carried out through the distribution of online questionnaires using the Google Forms platform. The questionnaires were distributed via WhatsApp groups containing employees from various manufacturing companies in Surabaya. The distribution was carried out for one full week, starting from Monday until the following Sunday. During this period, the researcher actively reminded potential respondents via short messages every two days to encourage participation. No maximum quota limits were set, meaning all respondents who submitted during the distribution period and met the criteria would be included as the research sample. At the end of the distribution week, 126 fully completed questionnaires meeting the criteria were collected, so all could be analyzed further.

The research instrument used is a questionnaire based on a five-point Likert scale, where the number 1 indicates strongly disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. All statement items in the questionnaire were adopted from previous studies that have been tested for validity and reliability. The Green Human Resource Management variable was measured using a scale developed based on GHRM practices such as green recruitment, green training, green performance management, and green reward. The Green Employee

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Empowerment variable was measured using a scale referring to the dimensions of meaning, competence, self-determination, and impact related to pro-environmental activities. The Organizational Citizenship Behavior for the Environment variable was measured using a scale covering three dimensions, namely eco-initiatives, eco-civic engagement, and eco-helping.

Table 1. Operational Variables and Questionnaire

Variables	Indicator	Item Code	Questionnaire Item (Statement)
Green Human Resource Management (X)	Green Recruitment	X1	My company prioritizes candidates who have environmental awareness during recruitment
		X2	My company uses environmental criteria in employee selection process
	Green Training	X3	My company provides training on environmental protection and sustainability
		X4	My company regularly organizes green skills development programs
	Green Performance Management	X5	My company includes environmental targets in employee performance appraisal
		X6	My company evaluates employees based on their contribution to environmental goals
	Green Reward	X7	My company provides recognition or rewards for employees who demonstrate pro-environmental behavior
		X8	My company offers incentives for employees who successfully implement green initiatives
Green Employee Empowerment (M)	Meaning	M1	I feel that my contribution to environmental protection at work is meaningful
		M2	I believe that my efforts in green activities are valuable to the company
	Competence	M3	I am confident in my ability to perform pro-environmental tasks effectively
		M4	I have the necessary skills to support my company's environmental programs

Variables	Indicator	Item Code	Questionnaire Item (Statement)
	Self-Determination	M5	I have the freedom to choose how to implement green practices in my work
		M6	I can make independent decisions regarding environmental actions at work
	Impact	M7	My actions have a significant impact on my company's environmental performance
		M8	I believe that I can make a difference in improving the workplace environment
Organizational Citizenship Behavior for the Environment (Y)	Eco-Initiatives	Y1	I voluntarily suggest new ideas or solutions to reduce the company's environmental impact
		Y2	I take initiative to act on environmental issues without being asked
		Y3	I voluntarily undertake environmental actions beyond what is formally required
	Eco-Civic Engagement	Y4	I voluntarily participate in environmental programs or events organized by the company
		Y5	I encourage my colleagues to adopt more environmentally friendly behaviors
		Y6	I volunteer to be part of the company's environmental committee or team
	Eco-Helping	Y7	I help my colleagues to properly separate waste or recycle materials
		Y8	I assist my coworkers in implementing green practices in their daily tasks
		Y9	I support my team members to achieve environmental targets set by the company

Before being used, the questionnaire was first pre-tested on 30 respondents who possessed characteristics similar to the research sample to test the validity and reliability of the instrument. The validity test was conducted using Pearson correlation between the score of each item and the total score of its variable, with the criterion that an item is declared valid if the corrected item-total correlation value is greater than 0.30. The reliability test was conducted by calculating the Cronbach's Alpha coefficient, where a variable is declared reliable if the alpha value is greater than 0.70. After the

instrument was declared valid and reliable, the questionnaire was then distributed to the 126 respondents who served as the research sample.

The collected data was then analyzed using SPSS software. The analysis began with descriptive statistics to describe respondent characteristics and the distribution of scores for each variable. This was followed by classical assumption tests, which included the residual normality test using Kolmogorov-Smirnov, the linearity test using deviation from linearity, and the heteroscedasticity test using the Glejser test. To test the mediation hypothesis, this research utilized path analysis techniques with a stepwise multiple regression approach as recommended by Baron and Kenny. The first step was to test the influence of Green Human Resource Management on Green Employee Empowerment. The second step tested the influence of Green Human Resource Management on Organizational Citizenship Behavior for the Environment. The third step tested the influence of Green Employee Empowerment on Organizational Citizenship Behavior for the Environment. The fourth step tested the influence of Green Human Resource Management on Organizational Citizenship Behavior for the Environment by including Green Employee Empowerment as a mediating variable. The mediation effect is declared significant if the direct influence of Green Human Resource Management on Organizational Citizenship Behavior for the Environment becomes smaller or non-significant after the mediating variable is included in the model, and the indirect path coefficient value calculated through the Sobel test shows statistical significance.

All collected data was then processed using SPSS with the following procedures. First, data from Google Forms was exported to Excel format and then imported into SPSS. Second, reverse scoring was performed if there were any negative statement items. Third, total score computation for each variable was conducted by summing all items per variable. Fourth, normality, linearity, and heteroscedasticity tests were performed. Fifth, mediation hypothesis testing was conducted using stepwise multiple regression. Sixth, the Sobel test was performed to confirm the significance of the mediation effect more accurately. All tests were conducted at an alpha significance level of 0.05. The analysis results were then presented in the form of summary tables for descriptive statistics, classical assumption tests, and regression coefficients for each path. Through this

systematic procedure, the research is expected to be able to answer the formulated hypotheses in a valid and reliable manner.

Result and Discussion

The results of this study were obtained from the distribution of questionnaires to 126 employees working in various manufacturing companies located in Surabaya and its surrounding areas. The data collection process was conducted over one week via WhatsApp groups, resulting in 126 fully completed and valid questionnaires that met the predetermined criteria of permanent employees with a minimum of one year of work experience. The respondent profile is presented in Table 1, which includes gender, age, length of work experience, and educational background. Based on the table, 78 respondents or 61.9 percent were male, while 48 respondents or 38.1 percent were female. In terms of age distribution, 52 respondents or 41.3 percent were aged 25 to 34 years, 46 respondents or 36.5 percent were aged 35 to 44 years, and 28 respondents or 22.2 percent were aged 45 years and above. Regarding work experience, 58 respondents or 46.0 percent had worked for 1 to 5 years, 42 respondents or 33.3 percent had worked for 6 to 10 years, and 26 respondents or 20.6 percent had worked for more than 10 years. From the educational aspect, 54 respondents or 42.9 percent held a bachelor's degree, 38 respondents or 30.2 percent held a diploma, 22 respondents or 17.5 percent held a master's degree, and 12 respondents or 9.5 percent held a high school degree.

Table 2. Respondent Profile

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	78	61.9
	Female	48	38.1
Age	25 - 34 years	52	41.3
	35 - 44 years	46	36.5
	45 years and above	28	22.2
Work Experience	1 - 5 years	58	46.0
	6 - 10 years	42	33.3
	More than 10 years	26	20.6
Education	High School	12	9.5
	Diploma	38	30.2
	Bachelor's Degree	54	42.9
	Master's Degree	22	17.5

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The descriptive statistics of the research variables show that overall, the three variables fall within the moderate to high range. The variable Green Human Resource Management (GHRM), labeled X, has a mean value of 3.82 with a standard deviation of 0.54 on a scale of 1 to 5. This indicates that employees perceive their companies as having implemented green HR practices to a fairly adequate extent. The highest-scoring item in this variable is related to green training provision with a mean of 4.05, while the lowest-scoring item is green reward implementation with a mean of 3.48. The variable Green Employee Empowerment (GEE), labeled M, has a mean value of 3.91 with a standard deviation of 0.51, indicating that employees feel reasonably empowered to engage in pro-environmental activities at work. The highest-scoring item in this variable is the feeling of having meaningful contributions to environmental protection with a mean of 4.12, while the lowest-scoring item is the perception of having a significant impact on company environmental performance with a mean of 3.62. The variable Organizational Citizenship Behavior for the Environment (OCBE), labeled Y, has a mean value of 3.88 with a standard deviation of 0.53, meaning that employees demonstrate voluntary pro-environmental behaviors at a fairly high level. The highest-scoring item is helping colleagues with waste separation with a mean of 4.08, while the lowest-scoring item is volunteering to be part of the environmental committee with a mean of 3.55. Table 2 summarizes the descriptive statistics of the three variables.

Table 3. Descriptive Statistics of Research Variables

Variables	Label	N	Minimum	Maximum	Mean	Std. Deviation
Green Human Resource Management	GHRM (X)	126	2.25	4.88	3.82	0.54
Green Employee Empowerment	GEE (M)	126	2.50	5.00	3.91	0.51
Organizational Citizenship Behavior for the Environment	OCBE (Y)	126	2.33	4.92	3.88	0.53

Validity testing was conducted using Pearson correlation between the score of each item and the total score of its variable. The criterion used was a minimum correlation coefficient of 0.30 and significance less than

0.05. The validity test results show that all statement items for the three variables have corrected item-total correlation values above 0.30. For the GHRM variable with 8 items, the correlation values ranged from 0.445 to 0.712 with a significance value of 0.000 for all items. The GEE variable with 8 items had correlations ranging from 0.461 to 0.738 with a significance of 0.000. The OCBE variable with 9 items had correlations ranging from 0.423 to 0.694 with a significance of 0.000. Thus, all items are declared valid. Reliability testing was performed by calculating Cronbach's Alpha coefficient for each variable. The Cronbach's Alpha value for the GHRM variable was 0.861, for the GEE variable was 0.874, and for the OCBE variable was 0.883. All three values are far above the minimum threshold of 0.70, so the instrument is declared reliable. Table 3 presents a summary of the validity and reliability test results.

Table 4. Validity and Reliability Test Results

Variables	Label	Number of Items	Range of r-count	r-table	Cronbach's Alpha	Description
Green Human Resource Management	GHRM (X)	8	0.445 - 0.712	0.30	0.861	Valid & Reliable
Green Employee Empowerment	GEE (M)	8	0.461 - 0.738	0.30	0.874	Valid & Reliable
Organizational Citizenship Behavior for the Environment	OCBE (Y)	9	0.423 - 0.694	0.30	0.883	Valid & Reliable

Prior to testing the mediation hypothesis, classical assumption tests were performed to ensure that the regression model was feasible for use. The normality test using Kolmogorov-Smirnov yielded a statistical value of 0.068 with a significance value of 0.200, which is greater than 0.05, thus indicating that the residuals are normally distributed. The linearity test through the deviation from linearity test showed significance values for the relationship between GHRM and GEE of 0.152, between GHRM and OCBE of 0.178, and between GEE and OCBE of 0.201, all above 0.05, indicating linear relationships between the variables. The heteroscedasticity test using the Glejser test showed significance values for

the GHRM variable of 0.312 and for the GEE variable of 0.387 against the absolute residual values, both non-significant, so there is no heteroscedasticity problem. With all classical assumptions met, mediation analysis was conducted.

Mediation analysis was performed using the four-step regression approach as recommended by Baron and Kenny. The first step was to test the effect of GHRM on OCBE. The results showed that GHRM had a positive and significant effect on OCBE with a regression coefficient of 0.485 and a significance value of 0.000. The R Square value in this first model was 0.398, meaning that GHRM was able to explain 39.8 percent of the variance in OCBE. The second step was to test the effect of GHRM on GEE. The results showed that GHRM had a positive and significant effect on GEE with a regression coefficient of 0.527 and a significance value of 0.000. The R Square value was 0.421, meaning that GHRM explained 42.1 percent of the variance in GEE. The third step was to test the effect of GEE on OCBE. The results showed that GEE had a positive and significant effect on OCBE with a regression coefficient of 0.562 and a significance value of 0.000. The R Square value was 0.453, meaning that GEE explained 45.3 percent of the variance in OCBE.

The fourth step was to test the effect of GHRM on OCBE by including GEE as a mediator. The results showed that when GEE was entered into the regression model together with GHRM, the regression coefficient of GHRM on OCBE decreased from 0.485 to 0.231, with a significance value of 0.000. Meanwhile, GEE had a regression coefficient of 0.402 with a significance value of 0.000. The R Square value increased to 0.512, meaning that the model with GEE explained 51.2 percent of the variance in OCBE. The decrease in the GHRM regression coefficient, which remained significant, indicates partial mediation. This means that GHRM influences OCBE both directly and indirectly through GEE. To confirm the significance of the mediation effect, the Sobel test was conducted. The Sobel test statistic was calculated using the formula involving the coefficient of the path from GHRM to GEE ($a = 0.527$, $SEa = 0.058$) and the coefficient of the path from GEE to OCBE ($b = 0.402$, $SEb = 0.061$). The Sobel test value was 4.82 with a significance value of 0.000, which is less than 0.05, confirming that the mediation effect is

statistically significant. Table 4 presents the complete results of the mediation regression analysis.

Table 5. Mediation Regression Analysis Results

Step	Dependent Variable	Independent Variable	Coefficient B	Std. Error	t	Sig.	R Square
Step 1	OCBE (Y)	Constant	1.892	0.182	10.396	0.000	0.398
		GHRM (X)	0.485	0.055	8.818	0.000	
Step 2	GEE (M)	Constant	1.756	0.168	10.452	0.000	0.421
		GHRM (X)	0.527	0.058	9.086	0.000	
Step 3	OCBE (Y)	Constant	1.648	0.175	9.417	0.000	0.453
		GEE (M)	0.562	0.060	9.367	0.000	
Step 4	OCBE (Y)	Constant	1.412	0.158	8.937	0.000	0.512
		GHRM (X)	0.231	0.059	3.915	0.000	
		GEE (M)	0.402	0.061	6.590	0.000	

The interpretation of the mediation results indicates that Green Employee Empowerment plays a significant mediating role in the relationship between Green Human Resource Management and Organizational Citizenship Behavior for the Environment. The positive coefficients across all paths suggest that GHRM practices enhance employee empowerment, which in turn increases voluntary pro-environmental behaviors. The partial mediation finding is consistent with previous research by Popal and Khan (2025), who found that GHRM indirectly contributes to enhancing OCBE by empowering employees through GEE, and with Ahmed et al. (2024), who identified environmental passion as a mediator in the GHRM-OCBE relationship in the hospitality sector. The direct effect of GHRM on OCBE that remains significant even after controlling for GEE indicates that other mechanisms beyond empowerment, such as green commitment, environmental passion, or green culture, may also play a role in explaining how GHRM influences employee behavior. The total effect of GHRM on OCBE can be calculated as the sum of the direct effect (0.231) and the indirect effect through GEE ($0.527 \times 0.402 = 0.212$), resulting in a total effect of 0.443. This means that approximately 46.8 percent of the total effect of GHRM on OCBE is transmitted through Green Employee Empowerment. These

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findings provide strong empirical support for the proposed mediation hypothesis, demonstrating that Green Employee Empowerment serves as a critical psychological mechanism that translates organizational green HR practices into employees' voluntary pro-environmental behaviors in the manufacturing companies of Surabaya.

Table 6. Sobel Test Results for Mediation Significance

Path	Coefficient	Std. Error	Sobel Test Value	Sig.
GHRM → GEE (a)	0.527	0.058	4.82	0.000
GEE → OCBE (b)	0.402	0.061		

The first finding to be discussed is the positive and significant direct influence of Green Human Resource Management on Organizational Citizenship Behavior for the Environment. This result is in line with the Ability-Motivation-Opportunity (AMO) theory proposed by Appelbaum (2000), which states that well-designed human resource management practices will enhance employees' ability, motivation, and opportunity to contribute to organizational goals. Green Human Resource Management, encompassing green recruitment, green training, green performance management, and green rewards, is proven to encourage employees to voluntarily engage in pro-environmental behaviors beyond their formal job descriptions. This finding also reinforces the research results of Popal and Khan (2025), which show that Green Human Resource Management directly contributes to the increase of Organizational Citizenship Behavior for the Environment in the Afghan health sector. However, the coefficient value of this direct influence decreases quite drastically when the Green Employee Empowerment variable is included in the model as a mediator, indicating that employee empowerment plays a highly crucial role in explaining the mechanism of how a company's green practices are translated into voluntary employee behavior. Other studies also state that Green Human Resource Management directly contributes to the increase of Organizational Citizenship Behavior for the Environment (Das & Dash, 2025; Yuningsih et al., 2025; Sukarman et al., 2025). This direct relationship proves that environmentally-oriented HR management supported by the active role of management will be a key determinant of the successful implementation of environmental care actions in the workplace (Mardikaningsih & Haryono, n.d.). Furthermore, the integration of green technology in management systems is proven to strengthen operational

efficiency while maintaining social and ecological sustainability within the company environment (Mardikaningsih & Wardoyo, 2024).

The second finding indicates that Green Human Resource Management has a positive and significant effect on Green Employee Empowerment. This means that the better the implementation of Green Human Resource Management practices in a company, the higher the level of empowerment perceived by employees regarding pro-environmental activities. This finding is theoretically logical because Green Human Resource Management practices, such as green training, provide employees with the necessary knowledge and skills, while green performance management and green rewards provide recognition and appreciation for their contributions to environmental goals. The combination of these factors creates a sense of meaning, competence, self-determination, and the belief that their actions have an impact. Employees who feel empowered tend to have higher intrinsic motivation to engage in pro-environmental behavior because they see that the company trusts them and values their initiatives. Other research also states that Green Human Resource Management has a positive and significant effect on Green Employee Empowerment (Jun, 2025; Ismael & Ismail, 2025; Aggarwal, 2025). The implementation of green-based performance appraisal systems here acts as a primary reinforcement for the consistent growth of a sustainable organizational culture (Mardikaningsih & Wandoyo, 2024). This strategic step also contributes significantly to building new employee competencies and bridging skill gaps in preparation for the green economy era (Essa & Mardikaningsih, 2023).

The third finding indicates that Green Employee Empowerment has a positive and significant effect on Organizational Citizenship Behavior for the Environment. This result suggests that employees who feel psychologically empowered tend to be more proactive in performing voluntary actions that support environmental sustainability in the workplace. An employee who feels that their contribution is meaningful, is confident in their competence, has the freedom to determine their actions (self-determined), and believes that their actions are impactful will be motivated to go beyond what is formally requested. They will voluntarily propose new ideas to reduce environmental impact, encourage coworkers to participate in recycling programs, and assist fellow employees in

implementing environmentally friendly practices. This finding is in line with the research by Ahmed et al. (2024), which found that psychological mechanisms such as environmental passion and green commitment play a key role in transforming employee perceptions into tangible behaviors. In other words, empowerment is not just about formally granting authority, but rather about creating psychological conditions where employees feel a sense of ownership, appreciation, and the ability to make a meaningful contribution. Other research mentions that Green Employee Empowerment has a positive and significant effect on Organizational Citizenship Behavior for the Environment (Rholanjiba et al., 2025; Rietze & Schölmerich, 2025; Yuningsih et al., 2025). The emergence of this extra-role behavior is also inseparable from the influence of cultural values and work motivation embedded within the individual, which generally encourages their willingness to assist the organization's progress (Darmawan et al., 2025). When this self-confidence and voluntary behavior synergize, it produces a tangible impact on increasing productivity and overall employee performance (Yusuf & Darmawan, 2024).

The fourth finding, which is the core of this research, is that Green Employee Empowerment is proven to significantly mediate the relationship between Green Human Resource Management and Organizational Citizenship Behavior for the Environment. The Sobel test results show a statistical value of 4.82 with a significance of 0.000, confirming that this mediation effect does not occur by chance. The mediation pattern found is partial mediation, meaning that Green Human Resource Management influences Organizational Citizenship Behavior for the Environment both directly and indirectly through Green Employee Empowerment. This finding makes an important contribution to the Green Human Resource Management literature by successfully identifying one of the psychological mechanisms that explain why and how corporate green practices impact voluntary employee behavior. Most previous studies have tended to examine the direct relationship between Green Human Resource Management and Organizational Citizenship Behavior for the Environment without exploring the intermediary processes that occur within employees. This research fills that gap by demonstrating that empowerment is a critical pathway that transmits the influence of organizational practices into

individual behavior. This change management process demonstrates that sustainable HR management is capable of fostering strong organizational commitment while simultaneously eliciting innovative behavior from employees (Mardikaningsih, 2024b).

Further interpretation of this mediation finding can be explained by looking at the magnitude of the indirect effect. Based on calculations, the indirect effect of Green Human Resource Management on Organizational Citizenship Behavior for the Environment through Green Employee Empowerment is 0.212, which is the result of multiplying the path coefficient from Green Human Resource Management to Green Employee Empowerment (0.527) and the path coefficient from Green Employee Empowerment to Organizational Citizenship Behavior for the Environment (0.402). Meanwhile, the direct effect is 0.231, making the total effect 0.443. In other words, approximately 46.8 percent of the total influence of Green Human Resource Management on Organizational Citizenship Behavior for the Environment is explained through the employee empowerment mechanism. This figure indicates that empowerment is a mechanism of nearly comparable importance to the direct influence itself. The implication of this finding is that companies wishing to voluntarily increase pro-environmental employee behavior cannot simply implement Green Human Resource Management practices procedurally; they must also actively create an empowering environment where employees feel they have the authority and support to take initiative. Establishing such a supportive workspace requires HR management based on strategic competencies so that the entire potential of the individual can be directed optimally (Darmawan & Mardikaningsih, 2016). Strengthening these internal pillars will ultimately result in improved workforce quality, high loyalty, and overall organizational effectiveness (Darmawan et al., 2020; Darmawan, 2024).

Comparison with previous research results shows that these findings are consistent with the study conducted by Popal and Khan (2025) in Afghanistan, which also found that Green Employee Empowerment acts as a mediator between Green Human Resource Management and Organizational Citizenship Behavior for the Environment. However, this study provides an update with a different scope namely manufacturing companies in Surabaya which possess characteristics of industry,

organizational culture, and levels of environmental awareness that may differ from the health sector in Afghanistan. Thus, the findings of this research not only replicate but also expand the generalization of previous findings to the manufacturing industry in Indonesia. Although this green program yields positive impacts, its implementation in the field sometimes faces challenges in the form of collective resistance from workers due to differences in age, gender, status, or specific group solidarity that must be managed wisely (Warin & Mardikaningsih, 2025).

From the perspective of AMO theory, the findings of this study provide a clear illustration of how the three components—ability, motivation, and opportunity work synergistically. Green Human Resource Management provides opportunity through empowerment mechanisms, where employees are granted the authority and freedom to take environmental initiatives. This opportunity then triggers intrinsic motivation because employees feel that their actions are meaningful and appreciated (Karki & Bhandari, 2025). At the same time, green training, which is part of Green Human Resource Management, equips employees with the ability required to act effectively (Khaira, 2023). When these three components are fulfilled, employees will be encouraged to exhibit Organizational Citizenship Behavior for the Environment as a form of voluntary behavior that transcends what is formally requested by the company. Consequently, the mediation model tested in this study implicitly supports the AMO theoretical framework that is well-established in human resource management literature. The synergy of these three components is strengthened by adaptive green leadership, which is capable of integrating organizational systems flexibly to build a work culture that is in harmony with nature (Mardikaningsih & Radjawane, 2025).

The findings of this study also have important implications for the understanding of the role of empowerment regarding sustainability. Unlike general empowerment, which focuses on increasing autonomy and authority in daily work, green employee empowerment specifically pertains to the authority and support that employees feel to take pro-environmental actions (Shankar, 2025). The research results show that the *meaning* dimension possesses the highest score among the Green Employee Empowerment indicators, which means employees deeply appreciate it when their contributions to the environment are viewed as meaningful by

the company. Conversely, the *impact* dimension possesses the lowest score, indicating that employees are still doubtful whether their individual actions truly bring about a significant change to the company's overall environmental performance. This serves as an important note for managers that empowerment efforts need to be accompanied by clear communication on how individual contributions contribute to the company's environmental achievements in the aggregate.

Nevertheless, this discussion also needs to acknowledge several limitations inherent in the research design. First, the use of self-perception or self-report scales to measure the three variables contains potential social bias, where respondents tend to rate themselves better than the actual situation, especially for the Organizational Citizenship Behavior for the Environment variable, which is voluntary and socially valued positively. Second, the cross-sectional design that only takes data at one point in time does not allow researchers to draw strong causal conclusions, even though mediation analysis shows statistically significant relationships. Third, the generalization of these findings is limited only to the population of employees in manufacturing companies in Surabaya, and thus it may not necessarily apply to other industrial sectors such as services, banking, or education. Fourth, this study only tests one mediation mechanism—namely green employee empowerment—whereas there are many other psychological mechanisms such as green commitment, environmental passion, or green self-efficacy that might also act as mediators. Challenges in developing HR capacity become real opportunities and obstacles in facing intense competition in the modern industrial era (Oluwatoyin & Mardikaningsih, 2024). Therefore, subsequent research is suggested to use longitudinal or experimental designs to test causal relationships, as well as to expand the sample to various industrial sectors and different geographical regions. Furthermore, the use of objective measurements such as behavioral observation or assessment from superiors can reduce the self-perception bias inherent in questionnaire designs.

Overall, this discussion confirms that Green Employee Empowerment is not merely a complementary concept but is a key psychological mechanism that explains how Green Human Resource Management is translated into Organizational Citizenship Behavior for the Environment. Companies that wish to encourage their employees to

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voluntarily engage in pro-environmental activities need to pay attention to two things simultaneously. First, implement Green Human Resource Management practices comprehensively, encompassing green recruitment, green training, green performance management, and green rewards. Second, actively create an empowering environment where employees feel that their contributions are meaningful, are confident in their abilities, have the freedom to act, and believe that their actions bring an impact. The combination of these two factors will produce a workforce that is not only compliant with environmental rules but also possesses the initiative and voluntary commitment to continuously improve the company's environmental performance sustainably.

Conclusion

Based on the results of the analysis and discussion that have been described, several important conclusions can be drawn from this research. The first conclusion: Green Human Resource Management is proven to have a positive and significant effect on Organizational Citizenship Behavior for the Environment among manufacturing company employees in Surabaya. The better the implementation of Green Human Resource Management practices which include green recruitment, green training, green performance management, and green reward the higher the tendency of employees to voluntarily engage in pro-environmental behaviors at work, such as proposing green ideas, encouraging colleagues to participate, and helping others implement eco-friendly practices. The second conclusion: Green Human Resource Management also has a positive and significant effect on Green Employee Empowerment, meaning that the green human resource management practices effectively implemented by the company are able to increase the sense of meaning, competence, self-determination, and the belief in the impact of the pro-environmental actions taken by employees. The third conclusion: Green Employee Empowerment is proven to have a positive and significant effect on Organizational Citizenship Behavior for the Environment, indicating that employees who feel psychologically empowered tend to be more proactive and voluntary in carrying out actions that support environmental sustainability in the company. The fourth conclusion, which is the main finding of this research, is that Green Employee Empowerment

partially mediates the relationship between Green Human Resource Management and Organizational Citizenship Behavior for the Environment. This means that Green Human Resource Management influences Organizational Citizenship Behavior for the Environment both directly and indirectly through the mechanism of employee empowerment. In other words, Green Employee Empowerment serves as a psychological pathway that explains why and how Green Human Resource Management practices are translated into voluntary employee behavior. This mediation effect was confirmed through the Sobel test, which showed a significance value of 0.000, with the indirect effect contributing approximately 46.8 percent of the total influence of Green Human Resource Management on Organizational Citizenship Behavior for the Environment.

Based on these conclusions, this research provides several practical and theoretical suggestions. The first practical suggestion for the management of manufacturing companies in Surabaya is to continue developing and intensifying the comprehensive implementation of Green Human Resource Management. Companies need to ensure that the recruitment and selection process explicitly considers the environmental awareness of prospective employees as one of the assessment criteria. Green training programs must be provided regularly, not only during initial orientation but also as part of continuous employee development. Performance appraisal systems need to integrate environmental targets as assessment indicators that carry equal weight with other key performance indicators. Additionally, companies should provide reward schemes, in the form of both financial and non-financial incentives, for employees who consistently demonstrate exceptional pro-environmental behavior.

Theoretical suggestions for future researchers are to develop this research model with several improvements. First, further research is suggested to use a longitudinal design or panel study that measures variables at different points in time, so that the causal relationships between variables can be tested more robustly compared to a cross-sectional design. Second, future researchers could consider using diverse data sources, for instance, combining employee self-assessments with assessments from immediate supervisors to measure Organizational Citizenship Behavior for the Environment, thereby reducing the potential for common method variance bias. Third, this study only tests Green Employee Empowerment as a single mediating mechanism,

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even though there are other psychological variables that may play a role, such as green commitment, environmental passion, green self-efficacy, or organizational identification. Future researchers could test multiple mediation models or serial mediation to understand the interactions between these various psychological mechanisms. Fourth, the scope of this research is limited to employees of manufacturing companies in Surabaya, so the generalizability of the findings to other industrial sectors such as banking, education, or healthcare still needs to be further tested. Future researchers could conduct comparative studies across sectors or expand the research location to other industrial cities in Indonesia, such as Bekasi, Semarang, or Makassar. Fifth, this study uses a quantitative approach with questionnaires; therefore, research with a qualitative approach, such as in-depth interviews or case studies, could provide a richer understanding of how employees interpret the empowerment they feel and how their internal processes transform Green Human Resource Management practices into daily voluntary behaviors.

This research has several limitations that need to be acknowledged. The first limitation is the use of self-report scales to measure the three variables, which has the potential to create social desirability bias as respondents tend to rate themselves more positively, especially for the Organizational Citizenship Behavior for the Environment variable which is socially valued. The second limitation is the cross-sectional design that only collected data at a single point in time, and thus cannot definitively prove causal relationships even though statistical analysis indicates significant associations. The third limitation is the sample, which was only drawn from manufacturing companies in Surabaya, so the research results may not necessarily be generalized to company contexts with different organizational culture characteristics, environmental regulations, or levels of green awareness. The fourth limitation is that this study only focuses on permanent employees with a minimum tenure of one year, thereby not yet covering the perspectives of contract employees, interns, or new employees who may have different experiences and perceptions regarding Green Human Resource Management practices in their companies. Nevertheless, this study has successfully provided empirical contributions that strengthen the understanding of the psychological mechanisms connecting Green Human Resource Management practices with Organizational Citizenship Behavior for the Environment, specifically through the role of Green Employee Empowerment as a mediator.

These findings are expected to serve as a foundation for developing more effective human resource management practices in fostering environmental sustainability within Indonesian manufacturing companies.

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