Creating Sustainable workplace through Integration of Artificial Intelligence (AI) and Green HRM Practices: An Empirical Study

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Abstract

One of the critical goals of organization is the creation of a sustainable workplace with the aim to balance economic growth with environmental stewardship and social well-being. The combination of Artificial Intelligence and practices of Green Human Resource Management is offering a revolutionary pathway for achievement of this goal. Artificial Intelligence tools like machine learning, predictive analysis, and automation are enabling organizations optimized use of resources, reducing environmental footprints, and enhancing productivity of employees. Simultaneously, practices of Green Human Resource Management are promoting sustainability by its eco-friendly policies, green trainings, and employee engagement activities in environmentally conscious creativities. Workplace AI assists organizations in improving their operational efficiencies that help faster their decision-making, and inventive products and services. While there is a plenty of information available about how Artificial Intelligence provide value to workplace. Policy makers all over the globe are researching on how these rapidly developing AI technologies and their adoption at the workplace is increasing. A sample of 243 was collected from employees of different organization. The factors that identify how AI and Green HRM create sustainable workplace are AI for Sustainable Decision-Making, Green HRM Practices Enhanced by AI, Sustainable Talent Retention, and AI in Green Training and Development.

Keywords: Workplace AI, Artificial intelligence, technical skills, Green HRM, Green training and development

Introduction

Ideally, workplace AI and workers augment each other's strength. In this cohabitation, workers are benefitted from the application of Artificial Intelligence's accuracy, number calculation, and recognition of pattern. AI copy cognitive functions of humans, which include perceptions, reasoning, learning and decision-making. Application of AI are expanding rapidly; it is transforming organizations by bringing improvement in its operations and decision-making process and releasing workers from monotonous, manual, physical and dull tasks making it creative. Artificial Intelligence mainly benefits from interacting with workers instead of workers directly getting benefited from those interactions (Zirar, Ali & Islam, 2023). Measuring green performance of employees at the job is one of the most important functions in Green HRM, and without these practices, company cannot ensure practical environment performance in long-run. Evaluation of green performance of employees must be done independently or as an element of company's system of performance evaluation. There is a positive impact of green HRM on the non-green workplace employee's result that includes task performance of employees, organizational citizenship behaviour towards company and their intention to leave (Alghamdi, 2021). Though the green movement and green HRM and its practices are still in its early stage but increasing awareness in companies. The green movement that will make sure appropriate utilization of natural resources and assisting organizations to maintain suitable working environment and these practices would produce green environment for future generation. Green workplace is very

much sensitive, resource efficient, and socially responsible. To achieve environment sustainability goals, many organizations require to use proper HRM practices for encouraging their employees (Chowdhury et.al., 2019). Human Resource that has positive correlation with the performance of employees is green compensation. For continuous active involvement of individuals in this green agenda and to keep acknowledging their contribution, green rewards would include using of workplace and lifestyle benefit that ranges from free bicycles, and carbon credit offsets. Green HRM has been around the block and now is significantly taken as a study to create awareness that tend to create among different industries and organization. There are many reasons leading to green, but the main one includes rising of energy costs, and usage, environmental obligations and stricter legal and regulatory requirement for compliance. The outcome of the study shows that factors of green HRM like green recruitment and selection, green training and development, green advantages and compensation, and green performance management make positive impact of job satisfaction of employees (Benny & Abraham, 2023). AI is making revolutionary transformation is sustainable business strategies, still it is specific application within organizations that have remained unexplored. It is revealed that strategic deployment of Artificial Intelligence not only improves operational efficiency but also bring substantial environmental enhancement like optimization of renewable energy, utilization and mitigation of emissions. Moreover, the impact of Artificial Intelligence extends to improve safety at workplace, enhances diversity, and boosting community initiatives. Such initiatives not just make contribution for a better work environment but also improves the reputation of enterprise as a socially responsible entity. In context of Human Resource Management, the capabilities of Artificial Intelligence extended to enhance the work-life-balance by improving work schedule, prediction of workload patterns, and justifying risks of burnout among employees. With the adoption of robots and automated system in dangerous environment make significant reduction of risk to human workers. By deputation of dangerous and repetitive tasks to machines, organization not only improves safety at the workplace but also improves operational accuracy and reliability (Balcioglu, Celik & Altindag, 2024).

Literature Review

Hameed et.al., (2023) stated that Green Human Resource Management will stimulate engagement of employees with in-job green tasks at the workplace. The practices of Green Human Resource Management impact pro-environmental behavior of employees in which the pro-environmental conduct of employees was enhanced in organizations with practices of Green HRM. As pro-environmental behavior is not firmly assessed and compensated, such practices are highly influenced by individual view of company's green climate as the suitable green practices of Human Resource Management. The study also shows that "resistance to change (RTC)" has a counter-productive impact that can hamper organization and its employees from fully integrating green practices and lessening its negative impact on environment.

Segbenya, Kissi & Amoah (2024) highlighted that one of the effective measures that can be applied by the organization for evolving eco-friendly culture at their workplace is the incorporation of environmental sustainability initiative in the functions and practices of human resources also known as Green HRM. The conclusion of the study gives suggestion that managers of the company mainly the HRM manager must take some important steps for the development of economy for successful implementation of environment sustainability. It is advised that managers of HRM must include environmental sustainability into their basic functional activities. Including environmental sustainability must consider job analysis, recruitment, selection, orientation and training programs, performance management, rewards and compensation, and health & safety at the workplace.

Masood (2018) revaled that the green human resource management includes numerous functional activities of HRM department of any company. Green HRM also helps in the reduction of use of paper and its implementation in policies like recruitment, planning, selection, management of employees and their retention, making the green environment at the workplace. The activities and practices involved into Green HRM enhances the value of employee as well as organization. Business organizations all over the world have already started adopting Green HRM to develop effective workplace transforming traditional workplace. This phenomenon is a trend setting because green buildings are fulfilling some criteria to reduce the waste of natural resources which are used for construction purposes. Moreover, green buildings also include advanced features like energy efficiency, storm water management, and renewable energy.

Al-Hajri (2020) stated that the workforce who are involved in the implementation of green policies and practices at the workplace have become essential for the business organizations to motivate employee's attitude for organizational results. Work engagement of workers has been foreseen by the Human resource management practices. Therefore, green human resource management at the workplace can be considered as the motivational element making positive relationships with the work engagement of employees. The findings of the study reveal a positive but insignificant relation of green practices

of HRM towards retention of employees. However, it is also found that there is a substantial impact of Green HRM practices with the work engagement and their retention. The study reports an intervention of work engagement in green human resource management and relationship with employee retention.

Chreif & Farmanesh (2022) found that behavior of employees at the workplace is reformed by HRM and leadership. Green HRM and leadership as organizational qualifications of worker's green behavior give researchers good opportunity to conduct study in this area and create the knowledge associated to workers as the main contributors towards ecological sustainability. Green Human Resource Management is considered as a crucial element for sustainability of business. Thus, a new model of business assures a sustainable workplace required in the premise of Green Human Resource Management and leadership.

Gupta & Jangra (2024) studied that "social exchange theory" provides a lens by which there is need to understand why there is requirement to have positive association between Green HRM and work engagement. The theory also recommends that when any business organization make investment in sustainable practices the is advantageous for society and workers, workers are found to be more likely to respond by becoming more involved and committed towards their job. At the workplace, Human Resource Management performance features like opportunity of training, development of career, fair compensation, and a supportive work environment can be seen as a valued resources that are given by the company to their workers. Moreover, features of HRM performance were found to be partially mediated with the association between green HRM and work engagement which shed light on the method by which the practices of sustainability translated into high engagement.

Omune & Nyang (2021) stated that Green HRM practices make positive impact on the dynamics of workplace. It is suggested that there is a requirement of training and capacity building among workers to teach the culture of green practices and creating pro-environment leaders ensuring sustainability at the workplace. It also indicates that although practices of Green HRM have been adopted by organizations mainly in private sector but not many public companies have incorporated it into their practices as a part of organizational functions. The study concludes that there is a need for workers to get trained for inculcation of green cultural practices and to develop sustainability at the workplace.

Salim, Gogoi & Dutta (2022) highlighted that it is not unfamiliar that human resource is nothing but as important as oxygen for the business organization. In present time, companies are concentrating on Green HRM. Initiatives related to green environment have been taken up by business organizations to gain competitive advantage all over the others. Green practices in different aspects are highly essential for corporates for competitive advantage. Moreover, green training and development have many advantages for society as well as for the environment by creating awareness about environmental issues and promoting sustainable behavior at the workplace. Thus, green employee relations have appeared as an essential element in the promotion of sustainability at the workplace. It involves creation of policies and practices engaging employees in sustainable initiatives, provide them knowledge, understanding and resources to make sustainable selections, and develop a culture of environmental responsibility extending beyond the workplace.

Kalla (2018) studied that green workplace is featured by compassion towards the environment, effectual usage of resources, and social and community considerations. A green workplace can be achieved with some practices and procedures ensuring minimum damage to environment. Less usage of paper and with the usage of digital media, inter and intra communication can be effectively performed in digital way. Green workplace is essential for the performance of employees. Introduction and implementation of Green HRM gives many benefits to the company such as reduced costs and wastes, green workplace, enhancement of overall efficiency of resources. Green organization also increases the level of productivity by using efficient technological tools and reduce human efforts and costs. Digital meetings and workplaces have seen a substantial amount of reduction in costs and budgets. It is an added benefit that green organizations are reducing the carbon footprints.

Gehi (2023) highlighted that the word "green means nature, growth, harmony, wealth and stability." Human Resource Management is the acquisition, selection, recruitment, training, and compensation of the employees at the workplace. Green Human Resource Management follow sustainability development as a principle referring to the enhancement of economic wellbeing and work-life quality without making any compromise on the future generation's ability to meet the requirements. Green HRM means the set of principles, systems, and practices that are used to motivate workers at the workplace to adopt the green behavior for the promotion of green practices in HRM for awareness and commitment of workers on the issues related to sustainability.

Objective

To study the "Integration of Artificial Intelligence (AI) and Green HRM Practices for Creating Sustainable workplace"

Study's Methodology

243 respondents are considered for this study which was collected from employees at different organizations. Random sampling method was used to collect data and examined by "Explanatory Factor Analysis" for results.

Findings of the Study

Below table shows demographic details of participants it shows that 53.91% are Male, 46.09% are female. Looking at the age, 36.63% are between 28 to 33 years of age, 25.92% are between 33 to 38 years of age, and 37.45% are above 38 years of age. With regards to Work Experience, 29.22% are Less than 1 years, 27.57% are 1 to 5 years, and 43.21% are More than 5 years.

Details of Participants

Variable	Participants	% age
Gender		
Male	131	53.91%
Female	112	46.09%
Total	**243**	**100**
Age in years		
28 to 33	89	36.63%
33 to 38	63	25.92%
Above 38	91	37.45%
Total	**243**	**100**
Work Experience		
Less than 1 years	71	29.22%
1 to 5 years	67	27.57%
More than 5 years	105	43.21%
Total	**243**	**100**

"Factor Analysis"

"KMO and Bartlett's Test"

"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.775
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	4098.726
	df	91
	Significance	.000

"KMO and Bartlett's Test", value of KMO is .775

"Total Variance Explained"

"Component"	"Initial Eigenvalues"			"Rotation Sums of Squared Loadings"		
	"Total"	"% Of Variance"	"Cumulative %"	"Total"	"% Of Variance"	"Cumulative %"
1.	6.225	44.465	44.465	**3.769**	26.921	26.921
2.	2.535	18.110	62.574	**3.639**	25.996	52.917
3.	1.928	13.769	76.343	**2.540**	18.146	71.063
4.	1.535	10.961	87.304	**2.274**	16.241	**87.304**
5.	.493	3.521	90.825			
6.	.424	3.031	93.857			
7.	.214	1.528	95.385			
8.	.178	1.270	96.655			
9.	.148	1.057	97.712			
10.	.128	.914	98.626			
11.	.073	.518	99.144			
12.	.050	.357	99.501			
13.	.042	.302	99.803			
14.	.028	.197	100.000			

All the four factors are making contribution in explaining total 87.304% of variance. The variance explained by AI for Sustainable Decision-Making is 26.921%, Green HRM Practices Enhanced by AI is 25.996%, Sustainable Talent Retention is 18.146%, and AI in Green Training and Development is 16.241%.
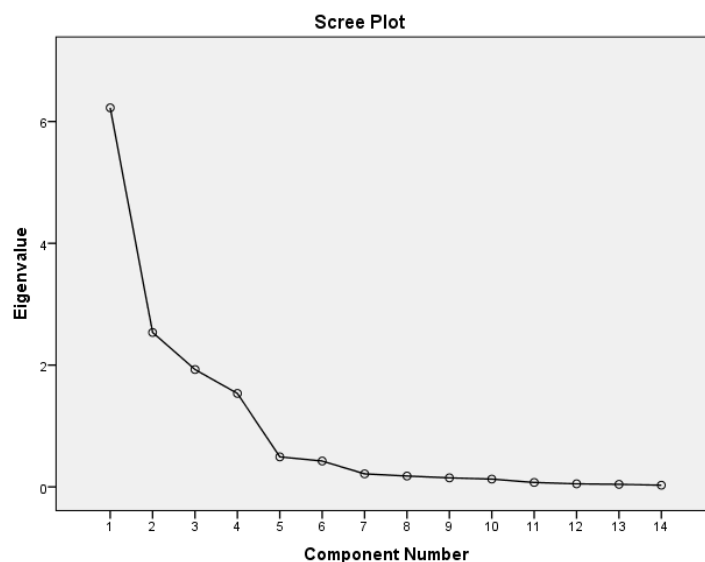
Scree Plot

<u>**Scree Plot**</u>

"Rotated Component Matrix"

S. No.	Statements	Factor Loading	Factor Reliability
	AI for Sustainable Decision-Making		**.952**
1.	Process large data provide insights of resource consumption, and operational efficiency	.949	
2.	This data can guide HRM to optimize energy use, reduce waste, and minimize the carbon footprint	.896	
3.	Predict trends in employee behaviour, helps HR in designing sustainable policies and practices	.858	
4.	AI can identify opportunities for remote work, reducing the need for office space and transportation	.852	
	Green HRM Practices Enhanced by AI		**.961**
1.	AI enabled performance management used to evaluate employee contributions to sustainability goals	.955	
2.	This could lead to performance incentives linked to sustainability achievements	.907	
3.	AI can deliver personalized training programs that educate employees on sustainability practices	.895	
4.	AI can be used to monitor and improve employee wellbeing, ensuring a healthy workforce	.886	
	Sustainable Talent Retention		**.885**
1.	AI can assist in recognizing employees who consistently contribute to sustainability goals	.924	
2.	Rewards and recognition can include eco-friendly incentives like discounts on sustainable products	.872	
3.	AI can help HR create flexible work schedules that support a healthy work-life balance	.825	
	AI in Green Training and Development		**.827**
1.	AI-powered learning management systems provide employees with training on sustainability practices	.935	

| 2. | Personalized training paths can be designed to upskill employees in waste management, energy conservation | .926 | |
| 3. | AI track impact of these training programs on employee behaviour and organizational sustainability | .623 | |

Factors and the associated variables

The first factor of the study is AI for Sustainable Decision-Making, it includes variables like Process large data provide insights of resource consumption, and operational efficiency, this data can guide HRM to optimize energy use, reduce waste, and minimize the carbon footprint, predict trends in employee behaviour, helps HR in designing sustainable policies and practices and AI can identify opportunities for remote work, reducing the need for office space and transportation. Green HRM Practices Enhanced by AI is the second factor, the variables it includes are AI enabled performance management used to evaluate employee contributions to sustainability goals, this could lead to performance incentives linked to sustainability achievements, AI can deliver personalized training programs that educate employees on sustainability practices, AI can be used to monitor and improve employee wellbeing, ensuring a healthy workforce. Third factor is Sustainable Talent Retention, its variables are AI can assist in recognizing employees who consistently contribute to sustainability goals, Rewards and recognition can include eco-friendly incentives like discounts on sustainable products, and AI can help HR create flexible work schedules that support a healthy work-life balance. Last and fourth factor is AI in Green Training and Development, that variables it includes are AI-powered learning management systems provide employees with training on sustainability practices, Personalized training paths can be designed to upskill employees in waste management, energy conservation, and AI track impact of these training programs on employee behaviour and organizational sustainability.

"Reliability Statistics"

"Cronbach's Alpha"	"Number of Items"
.892	14

Total reliability of 14 items that includes variables for Integration of Artificial Intelligence (AI) and Green HRM Practices for Creating Sustainable workplace is 0.892

Conclusion

This study has explored how sustainable workplace can be created with the integration of Artificial Intelligence (AI) and Green Human Resource Management. The empirical findings of the study shows that initiatives of Artificial Intelligence and Green HRM technology if aligned strategically, can make significant contribution towards sustainability of environment, organizational efficiency, and well-being of the workforce. Business organization who are adopting the practices of Green HRM and Artificial Intelligence are reporting higher level of employee engagement as employees appreciate making contribution towards meaningful, and environmentally conscious sustainable goals. The integration of AI and Green HRM also leads to enhanced utilization of resources, saving of costs, and long-term organizational sustainability. The practices of Green HRM like eco-friendly recruitment, sustainable performance management, and training programs motivate employees for the adoption of environmentally responsible behaviour leading to sustainable culture within organization. These new technologies offer a transformative approach towards the creation of sustainable workplace. The factors that identify how AI and Green HRM create sustainable workplace are AI for Sustainable Decision-Making, Green HRM Practices Enhanced by AI, Sustainable Talent Retention, and AI in Green Training and Development.

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