



Effect of green human resource management (GHRM) overall on organization's environmental performance: The mediating role of green employee empowerment

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ABSTRACT

This study assesses the effect of green human resource management (GHRM) practices (overall) on the organization's environmental performance (OEP) and to identify how the organizations can improve their EP by using GHRM practices through Green Employee Empowerment (GEE). The study was based on a questionnaire survey of 340 responses from the manufacturing sectors; the key respondents were one from each industry limited to top management, HR manager, quality manager, or employee of manufacturing firms. The questionnaires were tested for reliability and validity. To evaluate the hypothesis, data was examined using the PLS path modeling technique. The empirical findings show that the GHRM practices (overall) have a significant effect on OEP, and GEE mediates their relation. This research has theoretically contributed to the green HRM/HRM literature by establishing a link between GHRM practices and their EP outcomes in manufacturing companies. This study adds to the body of knowledge by looking at the indirect impacts of GHRM practices on OEP via GEE. The findings suggested that GHRM practices might lead employees to green empowerment in order to improve environmental performance.

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Introduction

Environmental problems become crucial worldwide concerns and generate social and commercial hurdles (Jovane et al., 2008; Boral Review, 2018). This has put huge pressure on businesses to align themselves with environmental requirements. According to the European Environment Agency (2014), Production-consumption systems are the direct and indirect source of a multiplicity of environmental, social, and economic consequences. Industrial sector is utilizing a huge quantity of resources and primarily responsible for waste generation all over the world. From 1970 to 2011, emissions of carbon dioxide have climbed by almost 90%, and 78% of total greenhouse gas emissions have been emitted due to use of fossil fuel in industries (IPCC, 2014). So, climate change and environmental pollution have been increased (OECD, 2009). The business organizations have given great attention toward their environmental responsibilities about the consequences of pollution on climate change and the indiscriminate use of natural resources (Willerding et al., 2016). As a result, new rules and policies have been implemented to address environmental challenges and sustainable development. Businesses and industries are constantly creating and implementing Environmental Management Systems (EMS) to comply with environmental regulations by accepting environmentally friendly practices and products (Marcus and Fremeth, 2009). In adopting EMS, Green Human Resource Management (GHRM) is considered the best practice in the firms (Masri and Jaroon, 2017).

GHRM is a strategy that complies with the company's environmental policy and preservation initiatives (Ren et al., 2018). It consists of a set of rules and processes designed to encourage company employees to conserve the abundance of knowledge-capital in the most ecologically friendly and cost-effective way possible (Tang et al., 2018; Masri & Jaaron, 2017). Policies and procedures provide

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a background to execute the GHRM in order to develop HR practices in the company (Prasad, 2013). GHRM practices such as such as training, leadership developments, selection, performance assessment, recruiting and rewards systems increase the green skills of workers, inspire the employees to remain green, and create green opportunity (Pellegrini et al. 2018; Renwick et al. 2013) which subsequently enhances employees' green behavior to voluntarily improve organizations' performance (Kim et al., 2019). GHRM practices have a positive influence on an organization's environmental performance (OEP) through green initiatives such as waste reduction and operational performance (Dumontet et al., 2016; Shen et al., 2018).

Environmental performance (EP) refers to organizational operations that attempt to meet and surpass society's expectations for the natural environment (Chan et al., 2011), rather than just following the regulations (Chen et al., 2015). It addresses the environmental effect of organizational production processes as well as the use of resource in a way that best meets the needs of the legal environment (Dubey et al., 2015). Research shows that environmental performance is linked to the quality of environmentally friendly products, green product processes and innovation, and the integration of environmental issues of sustainability into corporate business (Oliva et al., 2019). Additionally, the capacity to control pollution, reduce waste discharge, adopt recycling and reusing practices at the business, and implement systems like ISO 14001 at the business are indications of a firm's environmental performance and dedication to the environment. These environmental initiatives and systems require the cooperation of the Human Resource Management (HRM) department (del Bro et al., 2008). When an organization's pro-environmental goals and HRM practices are effectively matched, organization's success is ensured in attaining EP (Collins and Clark, 2003).

Stakeholders have put pressure on firms in recent years to seek sustainable, environmental business practices. Consequently, it is essential to discover green measures that might increase sustainability. A number of research in the field of HRM examined the impact of GHRM on the environmental performance of companies (O'Donohue and Torugsa, 2016; Renwick et al, 2016; Jabbor and Jabbor, 2016 etc.). Again, the majority of the researchers examined GHRM relationships based on single variables (Zaid et al., 2020; Tadić and Pivac, 2014). Recently, researchers using Human resource practices (HRM) as a synergic influence of joint activities, referred to as "bundles/overall" rather than depending on a single variable in regards to the relationship between HRM practices and company's performances (Zaid et al., 2020; Paillé et al., 2020; Tadić and Pivac, 2014). Furthermore, "bundles/overall" should represent a collection of interconnected and dependable human resource activities that should be supplementing one another (Zaid et al., 2018b). In previous GHRM studies, Scholars have given little attention to the effects of the GHRM bundle on company performance rather than on just individual practices (Zaid et al., 2020; Tadić and Pivac, 2014).

In addition, a few literatures suggested that green employee empowerment (GEE) is very crucial for the organizations to perform the green task (Tariq et al., 2016). Employee empowerment increases employee engagement, which enhances work performance in terms of effectiveness and efficiency (Jackson et al., 2014). Muogbo (2013) opined that empowered employee experience intrinsic inspiration, which leads to better work-related results including job satisfaction. So, GEE helps GHRM practices to attain the OEP. No empirical studies found which have tested the impact of GEE on the relation between GHRM practices and the OEP. There's still a major loophole. As a result, the purpose of this study is to fill in the gaps by investigating the effects of GHRM practices as overall on the organization's environmental performance (OEP) through green employee empowerment (GEE).

This study adds to the literature by expanding our understanding of whether GHRM practices have any impact on achieving EP inside manufacturing firms and by giving empirical data to resolve the debate among scholars concerning the influence of GHRMP on OEP. This research further contributes to the current GHRM research by adding GEE in its investigation of the underlying mechanism of GHRM and organizational EP, as well as empirical evidence of a link between GHRM Practices and OEP. The following research questions guide this article:

- i. Do the GHRM practices (overall) have any effect on the organizations' environmental performance (OEP)?
- ii. Does GEE has any mediating role between GHRM practices (overall) and organizations' environmental performance (OEP)?

This article is presented into five major sections. The study introduction is presented in the section 1. The literature review, hypothesis development and research framework are offered in the second section. The methodology is provided in section 3. Section 4 outlines a description of the study based on the empirical findings. The fifth section contains the study's conclusion and implication with recommendations for future research as well as a reference list.

Literature Review

GHRM is one of the strongest sections HRM. GRHM is a set of strategies for businesses to develop its human resources in ways that improve their EP and long-term sustainability (Wong et al., 2018; Jaramillo et al., 2018). When HRM practices of an organization (e.g., recruitment, training, performance measurement and reward systems etc.) develop employee's green abilities are known as GHRM practices. Performance, behaviors, attitude, and skill of human resources can be formed in an eco-friendly way by adapting GHRM practices (Arulrajah et al., 2015). According to Lee (2009), GHRM practices help businesses to save costs without sacrificing top talent, positions, or part-time workers. According to Nijhawan (2014), GHRM practice refers to the actual GHRM plan, process, and technology applied in an organization with the goal of reducing the negative environmental effect while enhancing the positive environmental effect.

Most firms are currently implementing strategic EP programs in order to get a competitive advantage (Rodriguez et al., 2012). EP is defined as an organization's contribution to environmental protection and the creation of quantifiable operational criteria within predefined boundaries (Paillé et al., 2020). HR managers play a critical role in accomplishing these EP objectives by hiring, educating, evaluating, and rewarding environmentally conscious employees (Renwick et al., 2013; Jabbour & Santos, 2008). Scholars have focused on HRM practices that aim to develop employee awareness, abilities, knowledge and incentives to enhance the company's EP (Jabbour et al., 2010; Daily and Huang, 2001; Ramus, 2002; Guerci et al., 2016; Zibarras and Coan, 2015; Tang, et al., 2018).

At organization level, adoption of GHRM enhanced the efficiency of resource use and the influence on businesses (Alhadid & Abu-Rumman, 2014), increased organizational performance (Renwick et al., 2013), strengthened public image, and raised brand awareness (Cherian & Jacob, 2012), reduced the company's environmental impact and created a sustainable competitive advantage (Macke & Genari, 2018). Rawashdeh (2018) observed that environmental conduct of companies influences the environment and business performance. Many studies have demonstrated that firms who implement greater levels of environmental management systems may benefit more and better from it (Wu et al., 2019).

In terms of individuals (employees), GHRM strengthens personal empowerment, which ultimately increases productivity and performance and fosters self-control and issue resolution (Renwick et al., 2013). In addition to this, Cherian and Jacob (2012) said Green HRM will improve staff involvement, comfort employees, and entice top-quality staff to join the organization.

Theoretical Background

Theories of GHRM consider GHRM practices as organizational resource and efficiency for its' business strategy. The RBV theory focuses mostly on inner resources of the company, such as assets, skills and competences, and on how these may be exploited to generate competitive advantages (Barney, 1991). The implementation of Green HRM at employee level in the organization is viewed as strategic competence for its outcomes to improve the organizational overall development (Arulrajah & Opatha, 2016). HRM skills are seen as internal resources with the major goal of GHRM to develop, inspire and provide chances for better business conduct for the competitive benefit of the company (Boxall and Steeneveld, 1999). It is believed to create an organization superior than rivals within the market if human resources implement RBV-strategies to develop and support increased competitive efficiency (Takeuchi et al., 2007).

AMO theory (Appelbaum et al., 2000) covers the various human resources practices based on three main components, including capacity, motivation and opportunity. HRM activities that enhance employee skills, job motivation and opportunity lead to corporate civic engagement by employees that contribute more to the organization's success (Marin-Garcia & Tomas, 2016). Appelbaum et al. (2000) said that the results of this theory were high production, decreased waste and higher quality. Pham et al. (2019) examined the link between green training, green employee engagement, green management, and corporate citizenship behavior in the hotel sector, based on the AMO model. Several research analyzed GHRM practices from the AMO theory perspective and showed positive effects on the behaviors of employees which affect the environmental performance of the company (Shen et al., 2018; Yu et al., 2020; Pinzone et al., 2016).

GHRM Practices

Implementing GHRM principles in a firm shows various advantages or beneficial outcomes for the organization. In their investigations, scholars have used several GHRM practices. This research focuses only on the green HR practices that help organizations to hire employees with environmental know-how (i.e. Recruitment & Selection), that support staff in enhancing their skills (i.e. training & development), monitoring employee's daily actions toward the environment (i.e., performance management and appraisal) and practice which encourages to take environmental initiatives (i.e., reward and compensation).

Green Recruitment & Selection (GRS)

Green Recruitment & Selection is a crucial component of GHRM as it highlights the need to establish an environmentally conscientious employees that can assist them enhance their EP (Mousa and Uthman, 2019; Zibarras and Coan, 2015). According to Ahmad (2015), the green recruitment and selection is a process that emphasizes environmental value and makes it a central component of the organization. The process of green recruitment and selection attracts and selects candidates with knowledge, abilities, personality and habits in line with environmental programs of a company (Ullah, 2017). Now-a-days, many businesses strive to give job descriptions that encompass a wide variety of environmental concerns and activities that are connected to employee tasks and responsibilities (Renwick et al., 2008). A study shows that high-level graduates' emphasis the environmental performance and reputation of the organization on their workplaces (Wehrmeyer, 1996). According to CIPD (2007), a green employer helps to enhance business identity and reputation and to recruit environmentally conscious workers.

Recruitment strategies ensuring potential employees recognize and respect the green culture of the firm (Jackson and Seo 2010) and the environmental understanding, values and beliefs of the applicant via interviews encourage effective green management (Renwick et al. 2012). When it relates to environment, the EP of the firm is generally utilized as a tool for recruitment (Jabbour, 2011). Arulrajah et al., (2015) opined that recruitment information should contain environmental requirements.

Green Training and Development (GTD)

Green training and development (GTD) refer to a collection of programs that encourage employees to acquire environmental skills and address environment problems that are crucial to the achievement of environmental goals (Jabbour, 2011). It may be understood as an important human or organizational feature in view of contemporary research on GHRM (Renwick et al., 2012). Environmental training might have a major impact on awareness of the environment of employees (Opatha & Arulrajah, 2014). Training may raise environmental awareness, knowledge and abilities of employees (Sammalisto & Brorson, 2008). Along with education programs, Green training should be offered not just to individuals linked with environmental departments, but to all personnel of the company. Green training may help employees learn more about pro-environmental workplace practices. Kjaerheim (2005) said that green training programs will assist employees understand the need of environmental conservation and make them more aware of environmental control and preventive activities, such as collecting of waste data and the identification of emission sources. According to a survey, employees' environmental activities in China are guided by their environmental awareness and values. Green knowledge management may offer employees complete green training, reinforce their understanding of environmental conservation and build their capabilities for solving environmental challenges (Sammalisto & Brorson, 2008). Staff engagement in green projects will provide prospects for upgrading green management as it contributes to establishing green goals, incentives and skills for employees (Mousa and Uthman, 2019).

Green Performance Management and Appraisal (GPA)

The Performance Management and Appraisal (PA) is a framework through which the EP levels of different departments within a company are assessed and meaningful records of management's EP collected (Wehrmeyer, 1996). The performance evaluation is one part of PA in accordance with Ivancevich (1995) since it allows employees to improve their work and effectiveness over time by evaluating, measuring their performance and contrasting their expectations and results. Performance management programs are crucial to ensure the success of the EP via employee's dedication to green management efficiency throughout time (Jackson et al., 2011; Jabbour & Santos, 2008).

Organizationally, a plan of action, a balanced scorecard and an accurate measuring system must be designed in order to assure the contribution of human resources to the organization's sustainable growth. According to Ahmad, job definitions should be consistent with green duties and goals (Ahmad, 2015). Epstein and Roy (1997), referenced in Ahmad (2015), claimed that human resources managers may preserve environment management without inflicting damage by incorporating environmental performance in PM procedures. The proactive strategy that companies have learnt is easier to set up corporate environmental sustainability rules and renewable information systems/audits for important environmental data collection (Marcus & Fremeth, 2009). Paille stresses the need for consistency, stating that the organization can succeed in the efforts of its enterprises to ensure environmental sustainability that can bring practice and human resources into line with environmental management and performance goals (Paille et al., 2020).

Green Compensation and Reward Management (GCR)

Green compensation and reward management (GCR) is a system of motivation to strengthen employee conduct through green skills development and success in the context of environmental programs through monetary incentives (pay increases or bonuses), non-monetary incentives (sabbaticals, special leave, donations) or public incentives based on praise (Ullah & Jahan, 2017). Recently compensation for environmental management was regarded important among the multiple environmental efficiency criteria of GHRM (Zou et al., 2015). Alcaraz and colleagues claim to use green reward practices for senior management and employees at all levels (Alcaraz, et al., 2017). The major purpose of the awards and compensation policy is to attract, keep and empower the best workers to acquire new skills and new knowledge and to assist the firm achieve its objectives (Teixeira et al., 2012). It will benefit EM if the remuneration structure is designed to avoid misconduct and encourage eco-responsive activity. Ahmad (2015) points out that modern firm are adopting reward systems for employees in the implementation of environmental programs. A CIPD survey in the United Kingdom, as reported by Ahmad (2015), shows that about eight per cent of United Kingdom companies encourage green behavior with different awards and finances (CIPD, 2007) and that this approach can successfully drive workers to create green projects. As earlier study has shown, this concludes that both individuals and companies gain from the rewards as a motivation for green activities in companies.

Green Employee Empowerment (GEE)

Green Employee Empowerment (GEE) is the leading GHRM practice to accomplish green organizational goals (Tariq et al., 2016). Employee empowerment is a motivational strategy that assist employees become more involved and makes decisions. It emphasizes on trust, inspiration, decision making and removing barriers between employees and top managers (Meyerson & Dewettinck, 2012). GHRM practices strengthen the empowerment of employees by increasing skills, knowledge and incentive to organization's environmental performance. The study by Muogbo (2013) indicated that empowered workers feel inwardly driven, contributing to positive job-related achievements, such as job satisfaction. Appelbaum et al. (2000) states in AMO theory that GHRM practices affect the capacity and desire of employees to achieve green objectives and to provide the opportunity for achieving green goals. Norton and his colleagues emphasized that employee empowerment will lead to individual acts that transcend organizational expectations (Norton, et al., 2015. Gutowski et al. (2005) mentioned a variety of benefits, including increased work efficiency, improved commitment and work satisfaction by empowered green workforce. Studies have revealed a positive relation between

employee empowerment (EE) and organization's performance results such as employee happiness, morality, customer loyalty & protection and sustainability. According to studies, the more dedicated employees are, the more likely their company would expand faster than the industry average. Employee empowerment is found to be higher in businesses with double-digit growth. Customer happiness is also linked to commitment (Towers Perrin Talent Report, 2003; Coffman and Gonzalez-Molina, 2002; Hewitt Associates, 2004).

Organization's Environmental Performance (OEP)

Environmental performance is regarded to be an excellent opportunity to enhance the productivity of an organization in a win-win scenario, because environmental issues become more and more important in business plans and green concepts through innovation processes and strategic viewpoints of the organization (Dangeliko and Pujari, 2010). The number of organizations, using strategic environmental management practices (EMS) to improve their competitiveness (Yang et al., 2011), and using the environmental performance idea in the corporate strategies is increasing as social demand for environmental performance increases (Aragon-Ko and Sharma, 2003). In many firms environmental performance methods are introduced to limit pollution, greenhouse gas emissions, hazardous and solid waste (Daily et al., 2012). According to del Bro, et al. (2007), the implementation of an Environmental Management System (EMS) would enhance the efficiency of the environment (such as certification ISO 14001) and it is a method that requires a high degree of cooperation between environmental management and human resources. If a business has the proper person with the necessary knowledge and talents, it can successfully implement the EP plan (Daily & Huang, 2001). As a result, human resources strategies must connect themselves with corporate strategic aims so that organizations may build and develop employee talent, habits and attitudes to work towards organizational goals (Collins & Clark, 2003). Furthermore, it is necessary for staff to participate in environmental performance programs. According to Harvey et al. (2010), employees work more often with firms focusing on environmental challenges, and are more satisfied with jobs (Chan & Hawkins, 2010).

Hypothesis Development

GHRM practices and employee eco-friendly behavior are positively linked, according to recent researches (Kim et al., 2019; Dumont et al., 2017), implying that green HRM practices can build and develop employee environmental competences and skills, which in turn promote individual environmental performance. Current GHRM literature analysis found that some observational studies suggested using a group of GHRM practices as a technique of improving environmental performance (EP) through establishing environmental standards and values inside a firm rather than individual practices (Nejati et al., 2017; Renwick et al., 2013). Mousa & Othman (2019) have founded a positive association in the Palestinian health sector between the GHRM bundle practice and the OEP. Yusoff et al., (2018) applied a study model to assess how the GHRM bundle through organizational citizenship behaviour towards environment (OCBE) help to increase the EP in Malaysia's hotel sector and found a positive relation. Paillé et al. (2020) examined the effect of GHRM practice (overall) and found positive relation with the EP. On the basis of above literature reviews and empirical supports, this study examines the effect of GHRM practice (overall) on OEP by following hypothesis -

Hypothesis 1: GHRM practice (overall) is positively related with OEP.

Previous studies have shown that employees' sense of empowerment to the organization's EM strategy will grow if they are empowered (Kitazawa et al., 2000). Recent studies have provided empirical support, showing that GHRM practices are highly associated with workers' environmental attitudes/objectives (Kim et al., 2019; Dumont et al., 2016). GEE is a critical behavior for achieving the organization's green objectives (Tariq et al., 2016). GEE should be used as a strategic tool in the workplace to inspire employees to reconsider their career conditions, find satisfying jobs, and increase their level of competence (Laschinger et al., 2004). Renwick et al. (2013) have suggested that businesses use human resource management process to successfully support environmental protection. For example, by delivering green training and implementing workforce engagement programs, the company will improve employee enthusiasm for the social and economic benefits of EM (providing freedom for green tasks). GHRM practices may lead to GEE since the green initiative is direct and allows employees to be authorized in the process of achieving green goals. So this study recommends that-

Hypothesis 2: GHRM practice (overall) is positively related with GEE.

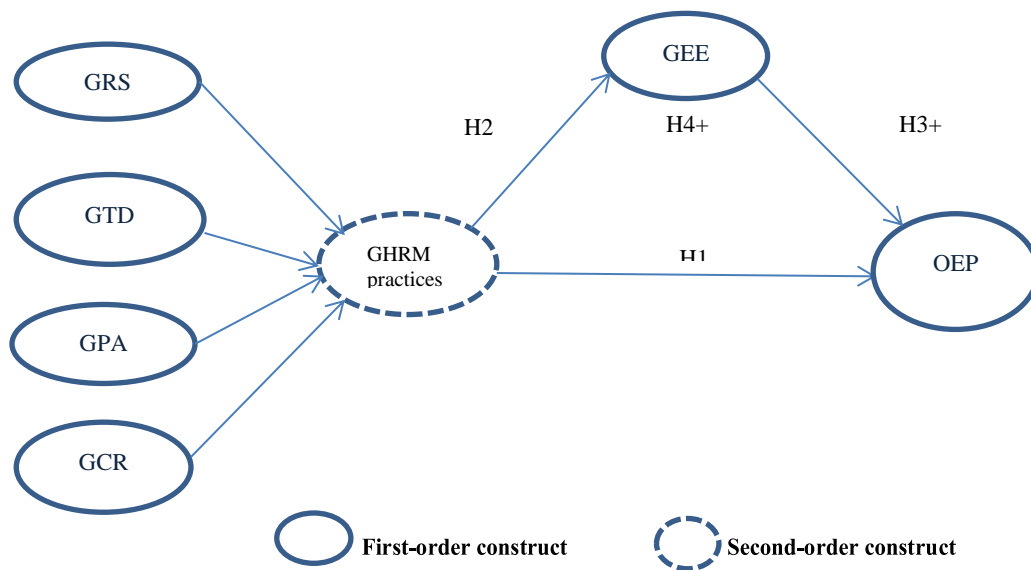
Hoffman (1993) believes that through green empowerment, organizations may motivate workers to join in environmental improvement programs such as corporate involvement. Green activities, e.g. the restriction of dumping filthy water into neighboring canals/rivers, or educating staff to properly manage hazardous chemicals and enforcing GHRM policies, might inspire employees to be green (Robertson and Barling, 2013). An analysis (Henriques and Sadorsky, 1999) of Canadian companies shows that those who have more successful green engagement profiles, correlate favorably with workers as a source of pressure. Meere (2005), based on an ISR study of 360000 workers from 41 firms in the world's ten most economically powerful countries, finds that in companies with low involvement, both operating and net profit margins decreased over a three-year span, whereas these metrics improved in companies with high levels of engagement. According to Pinzone et al. (2016), as staffs are given more insight into environmental decision-making, they are more likely to participate in cooperative environmental development programs. Therefore, Green Employee Empowerment (GEE) has positive relation with organization's environmental performance (OEP) and it is hypothesized that

Hypothesis 3: GEE is positively related with OEP.

Employees may be obligated to return to OEP if they expect gains from their corporate behavior (Jiang et al., 2012). So, it can be stated that there is a close relation between GHRM practices and OEP through GEE. GHRM practice enhances employee awareness, enthusiasm, and participation in green programs, resulting in increased employee empowerment against green goals (Appelbaum et al., 2000). Employees may be more inspired to display discretionary behavior when it comes to environmental policy as a result of their improved sense of empowerment (Hameed et al., 2019). Green employee empowerment has a positive effect on motivational levels when it comes to performing green projects, and improves an organization's results (Tariq et al., 2016). Hameed et al. (2019) discovered that green employee empowerment has a major indirect impact on organizational citizenship behavior toward the environment (OCBE). Hence, GHRM practice can improve the organization's environmental activities through GEE (Hoffman (1993). Therefore, it is hypothesized that:

Hypothesis 4: GEE mediates the relationship between GHRM practices (overall) and OEP.

On the basis of the above literature, theory and hypothesizes, the following Conceptual Framework is developed for the present study-



(GRS- Green Recruitment & Selection; GTD- Green Training & Development; GPA- Green Performance Management & Appraisal; GCR-Green Compensation & Reward Management; GEE-Green Employee Empowerment; OEP- Organization's Environmental Performance)

Figure 1: Conceptual Framework of the Study

Research and Methodology

Sampling

The population of this research is the manufacturing industries registered in Bangladesh and operate full-time. Applying a disproportionate stratified sampling method, a total of 340 valid questionnaire samples from 800 cases utilized for questionnaire analysis, which represents 42.5% of all submitted questions (Sekaran, 2003). The sample was largely males (81.5%), with a minority of female (18.5%), the majority between 31 to 40 years of age (39.4%) and the majority held bachelor's degree (42.6%). There was a greater focus on identifying and choosing the most appropriate respondent within each company to make sure that information is reliable, as long as the principal informant has management responsibilities and control of all human resources management at the senior management level, and knows about the company's general plan to articulate issues concerning industrial human resources activities and discuss them. The majority of them were of 'Other' category i.e. not less than the executive (40.0%), top management (24.4%), human resources manager (13.5%), quality manager (22.1%) and the majority was 6-10 years of service (37.6%). With regard to environmental management, 81.2% of respondents reported that their organization has applied green HRM or Green Programs, and 52.9% said that environmental management is included into their company operations.

Assessment of the Measurement Model

According to Hair et al. (2016), the measurement model describes how each construct is measured, whereas the structural model specifies how the variables in structural model are related to one another. The research model was examined utilizing Structural Equation Modeling (SEM) employing the Partial Least Squares (PLS) approach in this study (Ringle et al., 2015). PLS was chosen

as the statistical approach for this study because it permits simultaneous assessment of both the measurement and the structural model, resulting in more precise estimates (Barclay et al., 1995).

The study employed two-stage analytical approach from Hair et al. (2017) following the descriptive analysis. The evaluation is starting the measurement model (validity and reliability) and progressing to structural model assessment (testing the hypothesized relationships). The disjoint two-stage assessment approach which involves both measurement and structural models, gives an advantage over the one-step evaluation strategy (Hair et al., 2016).

In the first stage, a model that links all the lower components is developed and estimated (including exogenous and endogenous constructs). The model evaluation focuses mostly on the reflecting measurement models for the lower order components. In step two, the latent variable scores of the lower order components from stage 1 we create and estimate stage two models. Locate the LOC scores of the HOC and add them to the dataset as new variables. The findings are comparable to those obtained by repeated indicators approach with a small differentiation of the path coefficient estimations.

The measurement model comprises of 6 latent variables and 28 measured items (see the source in table-1). All measured items are loaded on only one latent variable each. The error terms cannot apply to other items of the model. Out of the four independent latent variables of GHRM Practice determinants, three (GRS, GTD, GPA) are indicated by five measured items, one (GCR) is indicated by three measured items. One mediating variable, i.e., GEE, is indicated by four items. All these are measured with "1-strongly disagree" and "5-strongly agree" endpoints. The dependent variable (OEP) is indicated by six measurement items and evaluated with "1-much worse" and "5-much better" endpoints. The questionnaire's items were sourced from previous literature (table-1).

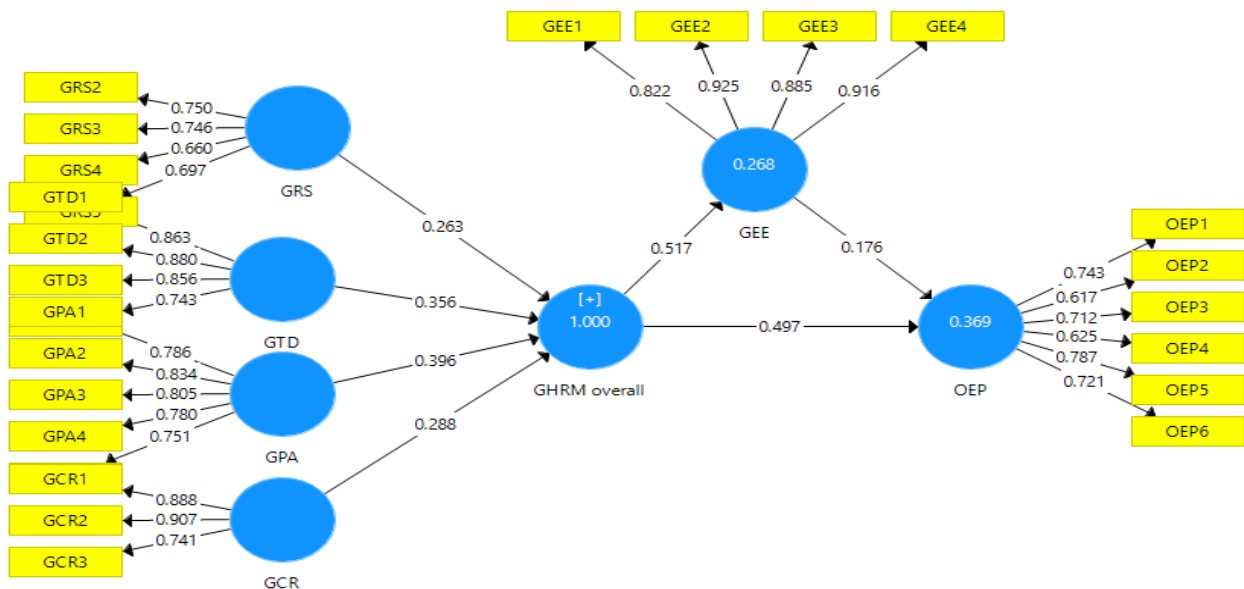


Figure 2: The Measurement Model of the Study

Reliability

Individual item reliability, composite reliability (CR) and Cronbach Alpha have been assessed for model reliability (table 1). Outer loadings of the items were in acceptable level (two under the 0.60 threshold value and deleted) (Hair et al., 2016). All loadings were over 0.707, except four items but still above the threshold of 0.60 levels (0.660, 0.697, 0.617, and 0.625 respectively) (Chin, 1998; Hair et al., 2016).

Table 1: Outer loading, CR, AVE and Cronbach Alpha

2 nd order construct	Items	Loading	AVE	CR	Cronbach Alpha	Item source
GRS	GRS1	Deleted	0.514	0.806	0.712	Jackson et al., (2011); Arulrajah, Opatha, & Nawaratne, (2016); Renwick et al., (2013).
	GRS2	0.750				
	GRS3	0.746				
	GRS4	0.660				
	GRS5	0.697				
GTD	GTD1	0.863	0.701	0.903	0.857	Masri & Jaaron (2017)
	GTD2	0.880				
	GTD3	0.856				
	GTD4	0.743				
	GTD5	Deleted				
GPA	GPA1	0.786	0.626	0.893	0.851	Mandip, (2012); Renwick et al., (2013); Razab, Udin, & Osman, (2015)
	GPA2	0.834				
	GPA3	0.805				
	GPA4	0.780				
	GPA5	0.751				
GCR	GCR1	0.888	0.720	0.885	0.800	Masri & Jaaron (2017)
	GCR2	0.907				
	GCR3	0.741				
GHRM practices (overall)			0.579	0.846	0.759	
GEE	GEE1	0.822	0.788	0.937	0.910	Men (2010); Jalal Hanaysha (2016)
	GEE2	0.925				
	GEE3	0.885				
	GEE4	0.916				
OEP	OEP1	0.743	0.512	0.842	0.801	Janaka et al. (2018) and Masri & Jaaron (2017).
	OEP2	0.617				
	OEP3	0.712				
	OEP4	0.625				
	OEP5	0.787				
	OEP6	0.721				

For further analysis, the 26 items were held in the conceptual model. Cronbach's alpha and composite reliability for all items and six latent variables scales were all above the 0.707 criteria, as shown in Table-1 (Hair et al., 2016). In other words, the findings were appropriate for evaluating newly constructed scales. With these trends, a high degree of reliability was determined.

Validity (Convergent and Discriminant Validities)

Convergent validity is a test that assesses the consistency of different indicators inside a single framework. When assessing convergent validity, factor loading, composite reliability (CR), and Average Variance Extracted (AVE) must all be considered (Hair et al., 2016). The meaning might range from 0 to 1. To assure convergent valid results, the AVE value should be larger than 0.50. All the values are within the recommended value (table-1).

The degree to which the structures change empirically referred as discriminant validity. It also examines the overlap between systems (Hair et al., 2016). Cross loadings, Fornell-Larcker and Hetrotrait-monotrait ratios (HTMT) can be utilized for assessment of discriminant validity (Hair et al., 2016). All cross loadings value (table-2) are more than 0.70 (Hair et al., 2016).

Table 2: PLS output of cross loadings

	GCR	GEE	GPA	GRS	GTD	OEP
GCR1	0.888	0.505	0.294	0.370	0.392	0.401
GCR2	0.907	0.531	0.325	0.353	0.398	0.450
GCR3	0.741	0.373	0.419	0.447	0.403	0.362
GEE1	0.472	0.822	0.337	0.389	0.247	0.341
GEE2	0.477	0.925	0.335	0.316	0.296	0.367
GEE3	0.556	0.885	0.340	0.255	0.341	0.456
GEE4	0.454	0.916	0.303	0.292	0.271	0.361
GPA1	0.347	0.342	0.786	0.365	0.332	0.375
GPA2	0.353	0.357	0.834	0.474	0.369	0.357
GPA3	0.348	0.343	0.805	0.336	0.338	0.422
GPA4	0.276	0.221	0.780	0.351	0.289	0.255
GPA5	0.295	0.190	0.751	0.398	0.304	0.275
GRS2	0.424	0.281	0.374	0.750	0.377	0.279
GRS3	0.295	0.258	0.356	0.746	0.282	0.337
GRS4	0.225	0.211	0.247	0.660	0.216	0.338
GRS5	0.345	0.242	0.393	0.697	0.407	0.326
GTD1	0.465	0.320	0.393	0.416	0.863	0.421
GTD2	0.450	0.327	0.406	0.414	0.880	0.429
GTD3	0.358	0.247	0.328	0.378	0.856	0.385
GTD4	0.279	0.182	0.235	0.324	0.743	0.273
OEP1	0.556	0.511	0.419	0.323	0.434	0.743
OEP2	0.224	0.207	0.281	0.271	0.271	0.617
OEP3	0.244	0.231	0.227	0.280	0.277	0.712
OEP4	0.272	0.227	0.199	0.416	0.249	0.625
OEP5	0.246	0.215	0.218	0.319	0.275	0.787
OEP6	0.305	0.274	0.358	0.267	0.332	0.721

The Fornell-Larcker criterion is the diagonal elements are the square roots of AVE (Hair et al., 2016). Table 3 shows that the diagonal is the square root of the latent element's AVE, and that the higher the column or row, the higher the AVE. This means that the components are significantly associated to their respective indicators in contrast to other model variables (Fornell & Larcker, 1981; Chin, 1998), indicating that discriminant validity is excellent (Hair et al., 2016).

Table 3: The Fornell-Larcker criterion

	GEE	GHRM overall	OEP
GEE	0.888		
GHRM practices (overall)	0.544	0.761	
OEP	0.434	0.599	0.703

Another predictor of discriminant validity is HTMT values which should be less than a 0.85 threshold (Henseler, et al., 2016). Table-4 displays that all HTMT values are below the threshold value 0.85.

Table 4: Hetrotrait monotrait ratios (HTMT)

	GEE	GHRM overall	OEP
GEE			
GHRM practices (overall)	0.637		
OEP	0.456	0.725	

Overall, discriminant validity for this measurement model can be acknowledged, and discriminant validity between the constructs is endorsed.

Assessment of the Structural Model

The path coefficient (value), the coefficient of determination (R^2), the model's predictive relevance (Q^2), and the T-statistic value were the four key measurement criteria used to evaluate the structural model. Following Hair et al., (2016), a bootstrapping analysis was conducted. The criteria used to assess the hypotheses developed are summarized in Table 2.

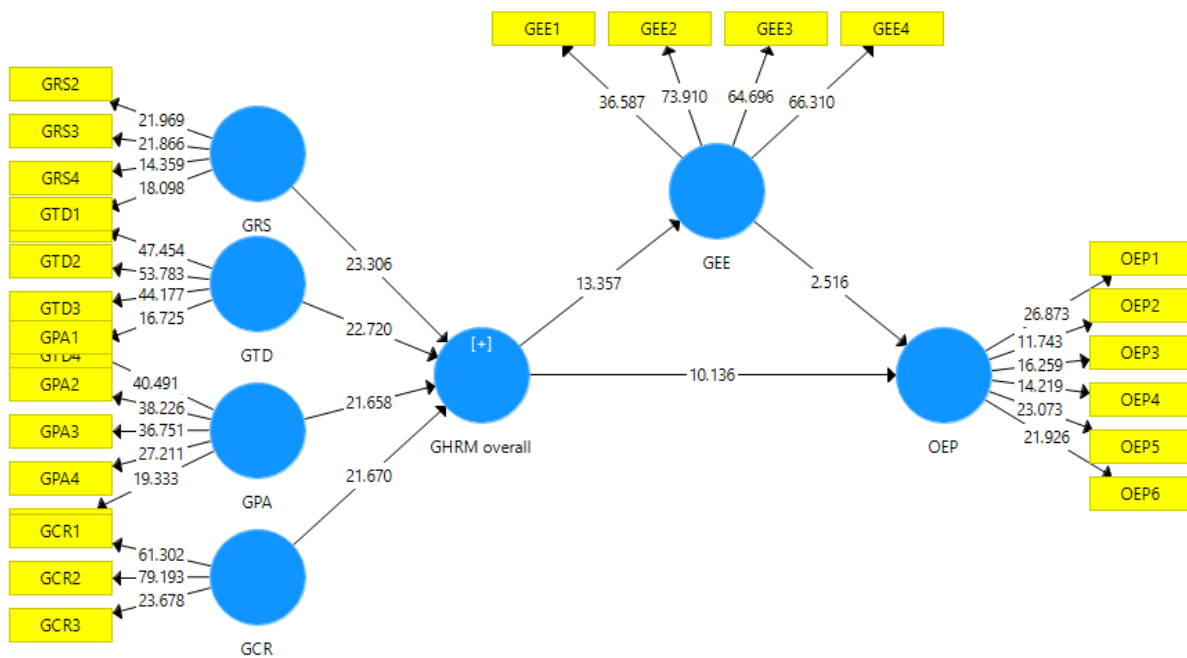


Figure 3: Path Model Significance Results

R-square and Q square

The R^2 value is more than the critical values of 0.67, 0.33, or 0.19, indicating the relationship is substantial, moderate and weak, as well as the amount of the influence (Chin 1998). As a result, the R^2 value was moderate in this study.

The statistical relevance criterion of the model is determined by the Q^2 value. According to Hair et al., (2016), the impacts of values for Q^2 should be significantly larger than zero to establish the external structure's predictive significance to the endogenous structure under consideration. Table 5 shows that the cross-validation values for the organization's environmental performance (OEP) and the GEE were 0.160 and 0.221, respectively. The findings of both tests were satisfactory and reasonable.

Table 5: R^2 and Q^2

Construct	R^2	Q^2
GEE	0.268	0.221
OEP	0.369	0.160

Multi-collinearity Test

Multi-collinearity is an issue that might arise in any study. This difficulty shows that the exogenous constructs of variance described in the endogenous structure do not overlap and so do not explain any single endogenous variable variation (O'brien, 2007). The Variance Inflation Factor (VIF) is commonly used to measure and analyze the degree of multi-collinearity (O'brien, 2007). A multi-collinearity problem develops when the biggest VIF is more than 5 (Hair et al., 2016). Table 6 reveals that all VIF values are less than 5 (from 1.428 to 1.736).

Table 6: VIF

GCR-GEE	1.437
GPA-GEE	1.428
GRS-GEE	1.502
GTD-GEE	1.469
GCR-OEP	1.736
GEE-OEP	1.502
GPA-OEP	1.466
GRS-OEP	1.507
GTD-OEP	1.471

Structural Model Path Coefficient

Using indexes for each latent variable and path coefficients connecting latent variables, the inner structural model for the dependent latent variable (OEP) is calculated. R², Q², path coefficients, and t-values (p 0.05) were used to calculate the structural model using a 5,000-sample re-sample bootstrapping procedure (Hair et al., 2016). The hypotheses are tested using the size of standardized parameter estimates between latent variables and t-values (> 1.96, p 0.05).

Hypotheses Tests

The hypothesis testing is shown by the structural model assessment, as illustrated in Fig. 3 and Table 7. Hypothesis 1 evaluates whether GHRM practices have any effect on OEP. The results (table-7) revealed that GHRM practices (overall) significantly associated with OEP ($\beta = 0.513$, $t = 10.136$, $p < .01$) which indicates H1 is supported. Hypothesis 2 was that GHRM practice (overall) is positively related to GEE. The results (table-7) shows that GHRM practices (overall) significantly associated with GEE ($\beta = 0.536$, $t = 13.357$, $p < .01$), so H2 is supported. Hypothesis 3 was that GEE is positively related with OEP. The results (table-7) shows that GEE significantly associated with OEP ($\beta = 0.154$, $t = 2.516$, $p < .01$), hence, H3 is accepted. Table-7 shows the 95 percent confidence intervals produced by bootstrapping of 5,000 resample in this analysis. A confidence interval that is not zero implies a meaningful relationship. Table-7 summarizes the hypothesis testing results.

Table 7: Hypothesis test

Hypothesis	Path	Beta (β)	Standard Deviation	T Statistics	P Value	2.50%	97.50%	Decision
H1	GHRM practices (overall)-> OEP	0.513	0.051	10.136	0.000	0.404	0.605	supported
H2	GHRM practices (overall) -> GEE	0.536	0.04	13.357	0.000	0.452	0.610	supported
H3	GEE -> OEP	0.154	0.061	2.516	0.012	0.029	0.271	supported
H4 (Mediation)	GHRM practices (overall) -> GEE -> OEP	0.082	0.035	2.385	0.017	0.016	0.154	supported

With regards to the mediation hypotheses (indirect hypotheses), Baron and Kenny (1986) pointed out that, “when the mediator meets: (1) the predictor variable must significantly predict the outcome variable when the mediator is excluded; (2) the predictor variable must significantly predict the mediator; (3) the mediator must significantly predict the outcome variable; and (4) the predictor variable must predict the outcome variable less strongly when the mediator enters the model”. In his essay "Beyond Baron and Kenny: Statistic Mediation Analysis in the New Millennium," Hayes (2009) recognized some flaws with the methodology of Baron and Kenny and presented comprehensive remedies in the book (Hayes, 2013) to assess the mediation effect using the bootstrapping method to determine the indirect influence. Hair et al. (2017) advise researchers to follow Preacher & Hayes (2004) and Preacher & Hayes (2008), when assessing mediating effects.

The study is built upon Preacher & Hayes (2004) and Preacher & Hayes (2008) methods, which are to examine the indirect influence of the GHRM practices (overall) on OEP through GEE. Table-7 displays the outcome of the analytical bootstrapping showing the indirect impact with $\beta = 0,080$ and t-value of 2.385 is significant. Preacher and Hayes (2008) indicate that when the β (0.080), 95% Boot CI: [LL = 0.016, UL = 0.154] does not straddle a 0 in between, implying that there is mediation. As a result, this study may infer that the mediation effect of GEE between GHRM practices (overall) and OEP is statistically significant. So, H4 is also supported.

Discussion

The aim of this research is to evaluate and assess the influence of GHRM practices (overall) on environmental performance of the manufacturing industry. This research was conducted to see how effective GHRM practices were at increasing employee contributions to environmental performance. It highlights the need of implementing environmental sustainability into human resource management strategies. The findings revealed that GHRM practices were used across industries, which is in line with previous research (Masri and Jaroon 2017).

The direct influence of GHRM practices (overall) in manufacturing firms on their environmental performance was investigated in this study. Under the H1 hypothesis, it is found that there is a significant positive relationship between "GHRM practices (overall)" and "organization's environmental performances (OEP)", which is consistent with prior research (Mousa & Othman, 2019; Paillé et al., 2020, Zaid et al., 2020). The explanation is that the successful dissemination of environmental knowledge and values through GHRM practices boosts the EM on the basis of employees' skills and motivation (Jabbour, 2011). This allows employees to enhance the environmental infrastructure (Cantor et al., 2012). The findings would also lead to Pinzone et al. (2016), which show how the EP aspects in companies affect the inspiration of employees to make further efforts for EM.

The findings of the study mirror the latest findings of Nejati et al., (2017), Longoni et al (2016) and Teixeira et al (2016). HRM is the fundamental component of company performance (Del Brío et al., 2007; Haddock-Millar et al., 2016). The relationship between HRM and Green Management can assist firms eliminate impediments to the implementation of OEP on the basis of RBV (Hart, 1995). In addition, environmental practices (GHRM), which enable mutual learning, have to be incorporated in order to develop an integrated green business (Mishra, 2017). Employees will develop skills and have opportunities to participate in green initiatives if they are assured of GHRM practices through green training and acknowledgment of their green efforts (Shen et al., 2018). Such advantages necessarily boost their psychological availability and job satisfaction (Chaudhary, 2019), consequently raising their organization's EP. Teixeira et al., (2016) emphasized the necessity to develop, empower employees and provide environmental training in support of green management of firm. Green hiring practices ensure hiring of potential and environmentally responsible employees, who in turn contribute to the organization's environmental performance (Zaid et al., 2018).

In hypothesis 2, a significant positive connection with green employee empowerment (GEE) was identified for GHRM (overall), which implies that it is consistent with prior experiments (Hameed et al., 2019, Barsi et al., 2013, Alzyoud, 2018). The aim of this study was to examine the influence of GHRM on the empowerment of employees. Our statistical findings have substantiated the effect of GHRM practices on employee empowerment. Effective HR practices (employee training, rewards and recognitions etc.) have a direct and positive relationship with an employee empowerment and engagement. The green practice provided by the industrial sector to its personnel adds to the organization's environmental performance. Employees think that GHRM practices strengthen the commitment of employees to the organization. According to Appelbun (2000), green practices on environmental goals would create employee empowerment through environmental efforts. Employees can participate in and contribute to the creation of environmental activities and targets which reinforce and identify with these psychological and emotional aspirations (Pinzone et al. 2016; Roscoe et al. 2019). Employees are more likely to advance their green competences, share knowledge with peers, adopt eco-initiatives and apply innovative solutions to address diverse environmental challenges through the GHRM.

Under hypothesis 3, GEE was found to have a significant positive association with OEP. H 3 provides evidence that empowerment is pertinent to employees. Our findings is supportive with recent research (Yusoff et al., 2015; Abid & Ahmed 2020; Daily et al., 2012) that demonstrates that direct links between employee empowerment and environmental performance have organizational consequences. Employees with the highest degrees of environmental empowerment perceive the highest levels of environmental performance when employees come to environmental decision-making autonomy. This is undeniably similar to classic studies on the fundamental idea of empowerment and organizational success (Kirkman et al., 2006). Green empowerment can inspire employees to participate in environmental improvement programs such as corporate engagement and if staffs are given more insight into environmental decision-making, they are more likely to participate in cooperative environmental development programs (Pinzone et al., 2016).

Under the H4 hypothesis, where GEE mediates the relation between GHRM practice (overall) and OEP, which is in line with previous study results (Hameed et al. 2019). The powerful impact is because workers feel obligated and try to reciprocate in green practice while perceiving their organization's empowerment in environmental concerns. Environmental activities thus allow for mutual interaction based on common values, which would enhance the social exchange between workers and organizations if encouraged (Paillé et al., 2020). This research adds to an emerging area's knowledge stock, arguing that GHRM practices have an indirect impact on OEP by GEE, which has not yet been evaluated in observational studies. In addition, our study introduces GEE as a process to the literature to investigate the fundamental function of GHRM and OEP, as previous research has indicated (Hameed et al. 2019).

Conclusion

The goal of this study was to learn more about the link between GHRM Practices and environmental performance in organizations. This empirical study has provided several theoretical contributions and practical implications by revealing the association between GHRM practices and 'OEP' directly and through 'GEE'.

This study adds to information on the conceptualization of the practices of Green HRM through the AMO theory lens, establishes a conceptual framework and discusses the connection of green HRM with environmental performance. This study has contributed theoretically to Green HRM/HRM by finding the connections between green practices (overall) and their manufacturing results associated to EP. The research also removed contradictions about the effects of GHRM Practices on OEP in literature and strengthened the link between GHRM and EP practices. Again, this study has proved that GHRM practices enhance the green empowerment among the employee by giving empirical evidence of relation between GHRM and GEE. Green empowerment can inspire and give employees more insight into environmental decision-making to participate in environmental improvement programs. Finally, this paper adds to the literature by incorporating GEE to explore the indirect effect of GHRM on OEP.

Firstly, in this research, the nature, direction and link between GHRM practices overall and its impacts on EP were empirically studied. Very few studies in HRM literature deal with the influence of GHRM practices on manufacturing firms. Secondly, this study underlines the necessity of GHRM practices in many types of manufacturing industries. This study might be a more advantageous and practical method of analysis of the links between each construct utilizing Partial Least Square path modeling statistical technique than earlier ways. This study results in an enhancement of knowledge and empirical information on GHRM and OEP regarding manufacturing firms. Third, this research adds to the knowledge stock of an emerging field, arguing that GHRM-practices indirectly impact the OEP through GEE. The outcomes of this study will help top management and managers to empower employees to take environmental decisions and initiatives.

This research helps to understand more closely how to adopt the GHRM practices. This study suggests that GHRM practices should be used by organizations to increase the green environmental management skills of their workforce. This study would help managers improve their company strategies by stressing the green activities that influence pillars of sustainability. They would also be helping managers improve their company plans. This research is also an evidence to enhance employee awareness of how green activities have a beneficial influence on their company's environmental performance. Besides, the results of this article show that top management should include a roadmap by formalizing the EMS and conveying the importance of incentive for employees in the improvement of the environment.

This study examines the number of significant and selected factors. Neither the conceptual model nor the questionnaire of study may contain all significant variables and the extent of GHRM practices within the manufacturing industry. More possible components may be included to the expansion of the study model for future study. Again, the cross-sectional method is used to collect data in this empirical study; longitudinal research might be used to understand the complicated link over a long period of time in future. For the first time, GEE was used as a mediating variable between Green HRM practices and environmental performance in this study. To back up this study, more empirical research may be done. Finally, in order to evaluate and generalize the findings of this study to a broader audience and circumstance, this research strategy should be tested in other developing nations with a number of manufacturing industries and are committed to uphold environmental condition.

References

- Adel Ali Yassin ALZYOUN, (2018). The Influence Of Human Resource Management Practices On Employee Work Engagement , Foundations of Management, Vol. 10 (2018), ISSN 2080-7279 DOI: 10.2478/fman-2018-0019
- Ahmad, S. (2015). Green Human Resource Management: Policies and practices. Cogent Business and Management. Edited by T. Nisar, 2(1).
- Alhadid, A. Y., & A. H. Abu-Rumman, (2014). The impact of green innovation on organizational performance, environmental management behavior as a moderate variable: an analytical study on nuqul group in Jordan. *International Journal of Business and Management*, 9(7), 51–58. <https://doi.org/10.5539/ijbm.v9n7p51>
- Appelbaum, E; Bailey, T; Berg P; Kalleberg A. L., (2000). Manufacturing Advantage: Why High-Performance Work Systems Pay off. *The Academy of Management Review*, 26(3), 459.
- Arulrajah, A. A. and Opatha, H. H. D. N. P. (2016). Analytical and Theoretical Perspectives on Green Human Resource Management: A Simplified Underpinning. *International Business Research*, 9(12), p. 153.
- Arulrajah, A. A., Opatha, H. H. D. N. P. and Nawaratne, N. N. J. (2015). Green human resource management practices: a review. *Sri Lankan Journal of Human Resource Management*, 5(1), p. 1.
- Barney (1991). Firm resource and sustained competitive advantage, *Journal of management*, Vol. 17, No. 1, 99-120
- Baron, R.M. and Kenny, D.A. (1986) 'The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, Vol. 51, pp.1173–1182.
- Barsi, M., Ziglari, F. & Abadi, M. N. A (2013). Study Effective Factors on Employees' Empowerment by a Model Based on Conger & Kanungo Model; Case Study: Social Security Organization of Bandar Abbas (Iran). *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 3(4), 308–318.

- Berrone, P. and Gomez-Mejia, L. R. (2009). Environmental Performance and Executive Compensation: An Integrated Agency-Institutional Perspective. *Academy of Management Journal*, 52(1), pp. 103–126.
- BORAL REVIEW (2018). accessed at 11/06/2020; https://www.boral.com/sites/corporate/files/media/field_document/Boral-Annual-Review-2018_0.pdf
- Boxall, P. and Steeneveld, M. (1999). Human Resource Strategy and Competitive Advantage: A Longitudinal Study of Engineering Consultancies. *Journal of Management Studies*, 36(4), pp. 443–463.
- Chan, E. S., & Hawkins, R. (2010). Attitude towards EMSs in an international hotel: An exploratory case study. *International Journal of Hospitality Management*, 29(4), 641–651.
- Chartered Institute of Personnel and Development (CIPD), “Recruitment, Retention and Turnover 2007: Annual Survey Report,” CIPD, London.
- Chaudhary, R. (2019) ‘Green human resource management in Indian automobile industry’, *Journal of Global Responsibility*, Vol. 10 No. 2, pp 161-175.
- Chen, Y., Tang, G., Jin, J., Li, J., Paillé, P., (2015). Linking market orientation and environmental performance: the influence of environmental strategy, employee's environmental involvement, and environmental product quality. *J. Bus. Ethics* 127 (2), 479–500.
- Cherian, J. P., & Jacob, J. (2012). A Study of Green HR practices and its effective implementation in the organization: a review. *International Journal of Business and Management*, 7(21), 1–15. <https://doi.org/10.5539/ijbm.v7n21p25>
- Chin, W. W. (1998). ‘The partial least squares approach to structural equation modeling’, *Modern methods for business research*, Vol. 295 No. 2, pp 295-336.
- Coffman, C., and Gonzalez-Molina, G. (2002). Follow this Path: How the world’s greatest organizations drive growth by unleashing human potential. New York Warner Books, Inc.
- Collins, C. J., & Clark, K. D. (2003). Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage. *Academy of Management Journal*, 46(6), 740–751.
- Daily, B. F. and Huang, S. (2001). Achieving sustainability through attention to human resource factors in environmental management. *International Journal of Operations and Production Management*, 21(12), pp. 1539–1552.
- Daily, B. F., Bishop, J. W. and Massoud, J. A. (2012). The role of training and empowerment in environmental performance: A study of the Mexican maquiladora industry. *International Journal of Operations and Production Management*, 32(5), pp. 631–647.
- Daily, B.F., Bishop, J.W. and Steiner, R. (2007). “The mediating role of EMS teamwork as it pertains to HR factors and perceived environmental performance”, *Journal of Applied Business Research*, Vol. 23 No. 1, pp. 95-109.
- Dangeliko, R.M., Pujari, D. (2010). Mainstreaming Green Product Innovation: Why and How Companies Integrate Environmental Sustainability. *J Bus Ethics* 95, 471–486. <https://doi.org/10.1007/s10551-010-0434-0>
- del Brío, J. A., Junquera, B. and Ordiz, M. (2008). Human resources in advanced environmental approaches—a case analysis, *International Journal of Production Research*, 46(21), pp. 6029–6053. doi: 10.1080/00207540701352094.
- Dubey, R., Gunasekaran, A., Ali, S.S., (2015). Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: a framework for green supply chain. *Int. J. Prod. Econ.* 160, 120–132.
- Dumont, J., Shen, J. and Deng, X. (2016). Effects of green HRM practices on employee workplace green behavior: the role of psychological green climate and employee green values. *Human Resource Management*, Vol. 56 No. 4, pp. 613-627.
- European Environment Agency (2014). European Environment Agency, (2014) Horizon 2020 Mediterranean report.’ Toward shared environmental information systems.
- Fernández, E., Junquera, B. and Ordiz, M. (2003). Organizational culture and human resources in the environmental issue: a review of the literature. *The International Journal of Human Resource Management*, 14(4), pp. 634–656.
- Fornell & Larcker 1981 Fornell, C & Larcker, D (1981). ‘Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, vol.18, no.1, pp.39-50.
- Gholami, H., Rezaei, G., Saman, M. Z. M., Sharif, S. and Zakuan, N. (2016). State-of-the-art Green HRM System: sustainability in the sports center in Malaysia using a multi-methods approach and opportunities for future research. *Journal of Cleaner Production*, 124, pp. 142–163.
- Govindarajulu, N. and Daily, B. F. (2004). Motivating employees for environmental improvement. *Industrial Management and Data Systems*, 104(4), pp. 364–372.
- Gudolf Kjaerheim, (2005). Cleaner production and sustainability, *Journal of Cleaner Production*, 13 (2005) 329-339.
- Guerci, M., Longoni, A. and Luzzini, D. (2016). Translating stakeholder pressures into environmental performance – the mediating role of green HRM practices. *The International Journal of Human Resource Management*, 27(2), pp. 262–289.
- Gutowski, T., Murphy, C., Allen, D., Bauer, D., Bras, B., Piwonka, T., Sheng, P., Sutherland, J., Thurston, D. and Wolff, E. (2005). Environmentally benign manufacturing: observations from Japan, Europe and the United States, *Journal of Cleaner Production*, Vol. 13, pp. 1-17
- Haddock-Millar, J., Sanyal, C. and Müller-Camen, M. (2016). Green human resource management: a comparative qualitative case study of a United States multinational corporation. *The International Journal of Human Resource Management*, 27(2), pp. 192–211.

- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks, CA: SAGE Publications
- Hameed, Z., Khan, I., Islam, T., Sheikh, Z. and Naeem, R. (2020). "Do green HRM practices influence employees' environmental performance?", *International Journal of Manpower*, Vol. ahead-of-print No. ahead-of-print.
- Hart, S. L. (1995). A Natural- Resource-Based View of the Firm. *Academy of Management Review*, 20(4), 986-1014
- Harvey, D. M., Bosco, S. M., & Emanuele, G. (2010). The impact of 'green-collar workers' on organizations. *Management Research Review*, 33(5), 499–511.
- Hayes, A., (2013). *Introduction to Mediation, Moderation, & Conditional Process Analysis (First)*. The Guilford Press.
- Hayes, A.F., (2009). Beyond Baron and Kenny: statistical mediation analysis in the new Millennium. *Commun. Monogr.* 408–420.
- Henriques, I. and Sadorsky, P., (1999). The relationship between environmental commitment and managerial perceptions of stakeholder importance. *Acad. Manage. J.*, 42(1), 87–99.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2016). Testing measurement invariance of composites using partial least squares. *International Marketing Review*, 33, 405–431.
- Hoffman, A.J. (1993). The importance of fit between individual values and organizational culture in the greening of industry, *Business Strategy and the Environment*, Vol. 2, pp. 10-18.
- IPCC (Intergovernmental Panel On Climate Change) (2014), accessed on 09/06/2020; https://www.ipcc.ch/site/assets/uploads/2018/03/WGIIIAR5_SPM_TS_Volume-3.pdf.
- Jabbour, C. J. C. and de Sousa Jabbour, A. B. L. (2016). Green Human Resource Management and Green Supply Chain Management: linking two emerging agendas. *Journal of Cleaner Production*, 112, pp. 1824–1833.
- Jabbour, C. J. C. and Santos, F. C. A. (2008). The central role of human resource management in the search for sustainable organizations. *The International Journal of Human Resource Management*, 19(12), pp. 2133–2154.
- Jabbour, C. J. C., Santos, F. C. A. and Nagano, M. S. (2010). Contributions of HRM throughout the stages of environmental management: methodological triangulation applied to companies in Brazil. *The International Journal of Human Resource Management*, 21(7), pp. 1049–1089.
- Jackson, S. E., Renwick, D. W. S., Jabbour, C. J. C. and Muller-Camen, M. (2011). State-of-the-Art and Future Directions for Green Human Resource Management: Introduction to the Special Issue. *German Journal of Human Resource Management: Zeitschrift für Personalforschung*, 25(2), pp. 99–116.
- Jackson, S. E., Schuler, R. S. and Jiang, K. (2014). An Aspirational Framework for Strategic Human Resource Management. *Academy of Management Annals*, 8(1), pp. 1–56.
- Jalal Hanaysha (2016). Examining the Effects of Employee Empowerment, Teamwork, and Employee Training on Organizational Commitment, *Procedia - Social and Behavioral Sciences* 229 (2016) 298 – 306
- Janaka Siyambalapatiya, Xu Zhang, Xiaobing Liu, (2018). Green Human Resource Management: A Proposed Model in the Context of Sri Lanka's Tourism Industry, *Journal of Cleaner Production*, doi: 10.1016/j.jclepro.2018.07.305
- Jaramillo, J. Á., Sossa, J. W. Z., and Mendoza, G. L. O. (2018). Barriers to sustainability for small and medium enterprises in the framework of sustainable development—Literature review. *Business Strategy and the Environment*. 0(0).
- Jiang, K., Lepak, D.P., Hu, J. and Baer, J.C. (2012). "How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms", *Academy of Management Journal*, Vol. 55, pp. 1264-1294.
- José M. Alcaraz, Lourdes Susaeta, Esperanza Suarez, Carlos Colón, Isis Gutiérrez-Martínez, Rita Cunha, Francisco Leguizamón, Sandra Idrovo, Natalia Weisz, Manuela Faia Correia & José Ramón Pin, (2017). The human resources management contribution to social responsibility and environmental sustainability: explorations from Ibero-America, *The International Journal of Human Resource Management*, DOI: 10.1080/09585192.2017.1350732
- Jovane, F., Yoshikawa, H., Altling, L., Boër, C. R., Westkämper, E., Williams, D., Paci, A. M. (2008). The incoming global technological and industrial revolution towards competitive sustainable manufacturing. *CIRP Annuals Manufacturing Technology*, 57(2), 641-659.
- Kim, Y. J., Kim, W. G., Choi, H.-M. and 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, pp. 83–93.
- Kirkman, B. L., Lowe, K. B., & Gibson, C. B. (2006). A quarter century of culture's consequences: A review of empirical research incorporating Hofstede's cultural values framework. *Journal of International Business Studies*, 37: 285–320
- Kitazawa, S., & Sarkis, J. (2000). The relationship between ISO 14001 and continuous source reduction programs. *International Journal of Operations & Production Management*, 20(2), 225–248. <https://doi.org/10.1108/01443570010304279>
- Laschinger, H. K. S., Finegan, J., & Shamian, J. (2002). The impact of workplace empowerment, organizational trust on staff nurses' work satisfaction and organizational commitment. *Advances in Health Care Management*, (3), 59-85.
- Lee, K. (2009). Why and how to adopt green management into business organizations?: The case study of Korean SMEs in manufacturing industry. *Management Decision*. Edited by R. Dwyer, 47(7), pp. 1101–1121.
- Longoni, A., Luzzini, D., Guerci, M., (2016). Deploying Environmental Management Across Functions: The Relationship Between Green Human Resource Management and Green Supply Chain Management. *J. Bus. Ethics*. 1-15.
- Macke, J., & Genari, D. (2018). Systematic literature review on sustainable human resource management. *Journal of Cleaner Production*, 208(January), 806–15. <https://doi.org/10.1016/j.jclepro.2018.10.091>
- Marcus and Fremeth (2009). Green Management Matters Regardless. *Academy of Management Perspectives*, 23(3), 17–26.

- Marin-Garcia, J. A. and Martinez Tomas, J. (2016). Deconstructing AMO framework: a systematic review. *Intangible Capital*, 12(4), p. 1040.
- Masri, H. A. and Jaaron, A. A. M. (2017). Assessing green human resources management practices in Palestinian manufacturing context: An empirical study. *Journal of Cleaner Production*, 143, pp. 474–489.
- Meere M. (2005). High cost of disengaged employees Victoria: Swinburne University of Technology. Accessed on 08/04/2020: [http://www.swinburne.edu.au/corporate/industrysolutions/ee/reports/Employee%20Engagement%20in Industry%20Breifing%20Paper%20Dec%202005%20.pdf](http://www.swinburne.edu.au/corporate/industrysolutions/ee/reports/Employee%20Engagement%20in%20Industry%20Breifing%20Paper%20Dec%202005%20.pdf) (October 30, 2008)
- Men, L. R. (2010). Measuring the impact of leadership style and employee empowerment on perceived organizational reputation. Retrieved on 02 Jan, 2021 from: <http://www.instituteforpr.org/wp-content/uploads/KEPRRA-the-Impact-of-Leadership-Style-and-Employee-Empowerment-on-Perceived-Organizational-Reputation.pdf>
- Meyerson, G., & Dewettinck, B. (2012). Effect of empowerment on employees performance. *Advanced Research in Economic and Management Sciences*, 2, 40-46.
- Mishra, P., 2017. Green human resource management: A framework for sustainable organisational development in an emerging economy. *International Journal of Organisational Analysis*, 25(5), 762-788.
- Mousa, S. K. and Othman, M. (2020). The impact of green human resource management practices on sustainable performance in healthcare organisations: A conceptual framework. *Journal of Cleaner Production*, 243, p. 118595.
- Muhammad Farrukh Abid & Irfan Ahmed, (2020). Impact of employee empowerment on organizational performance with mediating role of organizational commitment. An empirical study of Telecommunication Sector of Pakistan, *FUJBE Vol 5(2)*.
- Muogbo, U. (2013). The impact of employee motivation on organisational performance (A study of some selected firms in Anambra state Nigeria), *The International Journal of Engineering and Science*, Vol. 2, pp. 70-80
- Muster, V., & Schrader, U. (2011). Green work life balance: A new perspective for green HRM. *German Journal of Research in Human Resource Management*, 25(2), 140–156.
- Nejati, M., Rabiei, S., Jabbour, C. J. C., (2017). Envisioning the invisible: Understanding the synergy between green human resource management and green supply chain management in manufacturing firms in Iran in light of the moderating effect of employees' resistance to change. *Journal of Cleaner Production*, 168, 163-172.
- Nijhawan, G. (2014). Green Hrm-A Requirement For Sustainable Organization. *Indian Journal of Research*, 3(10), 69-70
- Norton, T. A., Parker, S. L., Zacher, H. and Ashkanasy, N. M. (2015). Employee Green Behavior: A Theoretical Framework, Multilevel Review, and Future Research Agenda. *Organization and Environment*, 28(1), pp. 103–125.
- O'brien, R.M., 2007. A caution regarding rules of thumb for variance inflation factors. *Qual. Quan.* 41 (5), 673–690. <http://dx.doi.org/10.1007/s11135-006-9018-6>.
- O'Donohue, W. and Torugsa, N. (Ann) (2016). The moderating effect of “Green” HRM on the association between proactive environmental management and financial performance in small firms. *The International Journal of Human Resource Management*, 27(2), pp. 239–261.
- Oliva, F.L., Semensato, B.I., Prioste, D.B., Winandy, E.J.L., Bution, J.L., Couto, M.H.G., Singh, S.K., (2019). Innovation in the main Brazilian business sectors: characteristics, types and comparison of innovation. *J. Knowl. Manage.* 23 (1), 135–175.
- Opatha, H. H. D. N. P. and Arulrajah, A. A. (2014). Green Human Resource Management: Simplified General Reflections. *International Business Research*, 7(8), p. p101.
- Paillé, P., Valéau, P. and Renwick, D. W. (2020). Leveraging green human resource practices to achieve environmental sustainability. *Journal of Cleaner Production*, 260, p. 121137.
- Pellegrini, C., Rizzi, F., and Frey, M. (2018). The role of sustainable human resource practices in influencing employee behavior for corporate sustainability. *Business Strategy and the Environment*, 0(0), 27, 1221–1232.
- Perrin T. (2003). Working Today: Understanding What Drives Employee Engagement: The 2003 Towers Perrin Talent Report U.S Report. Accessed at 20/08/2020: <http://www.towersperrin.com/tp/getwebcachedoc?>
- Pham, N. T., Vo Thanh, T., Tučková, Z. and Thuy, V. T. N. (2019). The role of green human resource management in driving hotel's environmental performance: Interaction and mediation analysis. *International Journal of Hospitality Management*, p. 102392.
- Pinzone, M., Guerci, M., Lettieri, E. and Redman, T. (2016). Progressing in the change journey towards sustainability in healthcare: the role of “Green” HRM. *Journal of Cleaner Production*, 122, pp. 201–211.
- Prasad, R.S., (2013). Green HRM- Partner in Sustainable Competitive Growth. *Journal of Management Sciences and Technology*, 1(1), pp.15-18
- Preacher, K.J., Hayes, A.F., (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behav. Res. Meth. Instrum. Comput.* 36 (4), 717–731.
- Preacher, K.J., Hayes, A.F., (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav. Res. Meth.* 40 (3), 879–891.
- Preacher, K.J., Hayes, A.F., (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav. Res. Meth.* 40 (3), 879–891.
- Ramus, C. A. (2002). Encouraging innovative environmental actions: what companies and managers must do. *Journal of World Business*, 37(2), pp. 151–164.
- Rawashdeh, A. (2018). The Impact of green human resource management on organizational environmental performance in Jordanian health service organizations. *Management Science Letters*, 8(10), 1049–1058. <https://doi.org/10.5267/j.msl.2018.7.006>

- Razab, M. F. A., Udin, Z. M. and Osman, W. N. (2015). Understanding The Role Of Ghrm Towards Environmental Performance, *Journal of Global Business and Social entrepreneurship (GBSE)*, 1(2), 118-125.
- Ren, S., Tang, G. and E. Jackson, S. (2018). Green human resource management research in emergence: A review and future directions. *Asia Pacific Journal of Management*, 35(3), pp. 769–803.
- Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green human resource management: a review and research agenda*: Green human resource management. *International Journal of Management Reviews*, 15(1), 1–14.
- Renwick, D. W. S., Redman, T., and Maguire, S. (2012). Green Human Resource Management: A Review and Research Agenda. *International Journal of Management Reviews*, 15(1), 1–14.
- Renwick, D.W.S., Jabbour, C.J.C., Muller-Camen, M., Redman, T., Wilkinson, A., (2016). Contemporary developments in Green (environmental) HRM scholarship. *The International Journal of Human Resource Management*, 27, 114-128.
- Ringle, C., Wende, S., & Will, A. (2015). SmartPLS 2.0 (Beta). Hamburg, (www.smartpls.de).
- Rizwan Q.D and Ali U. (2010). Impact of reward and recognition on job satisfaction and motivation. An empirical study from Pakistan. *International journal of business and management*. Available online at www.ccsenet.org/ijbm.
- Roberts, Hewitt & Robinson, Gary, (1998). *ISO 14001 EMS Implementation Handbook*; Published by Butterworth-Heinemann- First Edition.
- Robertson, J.L. and Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors, *Journal of Organizational Behavior*, Vol. 34, pp. 176-194.
- Rodríguez-Antón, J. M., del Mar Alonso-Almeida, M., Celemín, M. S., & Rubio, L. (2012). Use of different sustainability management systems in the hospitality industry- the case of Spanish hotels, *Journal of Cleaner Production*, 22(1), 76–84.
- Roscoe, S., Subramanian, N., Jabbour, C. J. C. and Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), pp. 737–749.
- Sammalisto, K. and Brorson, T. (2008). Training and communication in the implementation of environmental management systems (ISO 14001): a case study at the University of Gävle, Sweden. *Journal of Cleaner Production*, 16(3), pp. 299–309.
- Sekaran, U. (2003). *Research Methods for Business: A Skill-Building Approach*. 4th Edition, John Wiley & Sons, New York.
- Shen, J., Dumont, J., & Deng, X. (2018). Employees' perceptions of green HRM and non-green employee work outcomes: the social identity and stakeholder perspectives. *Group & Organization Management*, 43(4), 594–622.
- Tadić, I. and Pivac, S. (2014) 'Defining Human Resource" Bundles" and Its' Correlation with Companies' Financial Performances', *International Journal of Social, Management, Economics and Business Engineering*, Vol. 8 No. 4, pp 1025-1029.
- Takeuchi, R., Lepak, D.P., Wang, H., Takeuchi, K., (2007). An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *J. Appl. Psychol.* 92 (4), 1069–1083.
- Tang, G., Chen, Y., Jiang, Y., Paillé, P. and Jia, J. (2018). Green human resource management practices: scale development and validity. *Asia Pacific Journal of Human Resources*, 56(1), pp. 31–55.
- Tariq, S., Jan, F.A. and Ahmad, M.S. (2016). "Green employee empowerment: a systematic literature review on state-of-art in green human resource management", *Quality and Quantity*, Vol. 50, pp. 237-269.
- Teixeira, A. A., Jabbour, C. J. C. and Jabbour, A. B. L. de S. (2012). Relationship between green management and environmental training in companies located in Brazil: A theoretical framework and case studies. *International Journal of Production Economics*, 140(1), pp. 318–329.
- The EEA's Environmental indicator report (2012). *Ecosystem resilience and resource efficiency in a green economy in Europe*. Accessed on 06/06/2020; <https://www.eea.europa.eu/publications/environmental-indicator-report-2012>.
- Ullah, M., & Jahan, S. (2017). "The Green Roles of HR Professionals: Green Human Resource Management Perspective." *The Cost and Management*, 45(2): 33-41.
- Wehrmeyer, W., (1996). *Greening People: Human Resources and Environmental Management*. Routledge.
- Willerding, I. A. V., Silveira, A. C. M., Berchin, I. I., Lapolli, E. M., and Guerra, J. B. S. O. A. (2016). Strategic management for sustainable development and the organizational aesthetic perspective. *Revista Eletrônica de Estratégia and Negócios*, 9(2), 134-166.
- Wong, C. W. Y., Wong, C. Y., and Boon-itt, S. (2018). How does sustainable development of supply chains make firms lean, green and profitable? A resource orchestration perspective. *Business Strategy and the Environment*, 27(3), 375–388.
- Wu, K.-J., Tseng, M. L., Lim, M. K., & Chiu, A. S. F. (2019). Causal sustainable resource management model using a hierarchical structure and linguistic preferences. *Journal of Cleaner Production*, 229 (August), 640–651. <https://doi.org/10.1016/j.jclepro.2019.04.394>
- Yang, M. G. (Mark), Hong, P., & Modi, S. B. (2011). Impact of lean manufacturing and environmental management on business performance: An empirical study of manufacturing firms. *International Journal of Production Economics*, 129(2), 251–261. doi:10.1016/j.ijpe.2010.10.017
- Yu, W., Chavez, R., Feng, M., Wong, C. Y. and Fynes, B. (2020). Green human resource management and environmental cooperation: An ability-motivation-opportunity and contingency perspective. *International Journal of Production Economics*, 219, pp. 224–235.
- Yusoff, Y. M., Nejati, M., Kee, D. M. H. and Amran, A. (2018). Linking Green Human Resource Management Practices to Environmental Performance in Hotel Industry. *Global Business Review*, p. 097215091877929.

- Zaid, A. A., Jaaron, A. A. and Bon, A. T. (2018a) 'The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study', *Journal of Cleaner Production*, Vol. 204, pp 965-979.
- Zibarras, L. D. and Coan, P. (2015). HRM practices used to promote pro-environmental behavior: a UK survey. *The International Journal of Human Resource Management*, 26(16), pp. 2121–2142.
- Zou, H., Zeng, S., Lin, H., Xie, X., (2015). Top executives' compensation, industrial competition, and corporate environmental performance: evidence from China.

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