Green Human Resource Management Bundle Practices and Sustainable Manufacturing Performance: Understanding Potential Relationships

Ahmed A. Zaid
Department of Industrial Management
Palestine Technical University (PTUK)–Kadoorei
Tulkarm, West Bank, Palestine
a.zaid@ptuk.edu.ps

Abdul Talib Bon
Production and Operations Management Department
Universiti Tun Hussein Onn
Parit Raja, Johor, Malaysia
talib@uthm.edu.my

Ayham A.M. Jaaron
Leicester Castle Business School
De Montfort University
Leicester, United Kingdom
ayham.jaaron@dmu.ac.uk

Abstract

In this era of the modern business environment, organizations have to constantly adapt and react to new ecological challenges. Therefore, it is critical for organizations to adopt various eco-friendly practices and processes and involve their employees in such practices; thereby achieving organizations' environmental goals. The objective of this paper is to investigate the impact of Green Human Resources Management (GHRM) practices as a bundle on environmental, economic, social and operational performance within the manufacturing sector of Palestine. The paper employs a quantitative research methodology. Data collected through surveys from 121 Palestinian manufacturing firms to test hypotheses using partial least square of structural equation model (PLS-SEM). The statistical analysis revealed that GHRM bundle practices have a positive influence on the four dimensions of organizational performance. The findings of this study can help manufacturing firms in identifying efficacious tactics for adopting GHRM practices that take part in sustainable development.

Keywords

Green human resource management, Environmental performance, Economic performance, Operational performance, Social performance.

1. Introduction

Growing attention towards environmental sustainability has been inducing stress for firms into being more conscious of their environmental effects. Such a phenomenon is especially faced by highly contaminating industries, which are particularly pressured with these issues (Masri and Jaaron, 2017). It has been found that previously green human resources management (GHRM) focused on individual practices (Longoni et al., 2016), this study perceived GHRM practices as a "bundle" that can improve the sustainable performance of a firm. Basically, this is corresponding with the study of Renwick et al. (2013) which calls for more studies to be conducted in investigating

the nexus amongst the GHRM bundle activities and organizational performance. Therefore, this actually enables the companies to connect their environmental HRM activities with company strategy in ensuring the improvement of organizational performance (Anusingh and Shikha, 2015). Recently, it can be observed that researchers have reached other dimensions in regards to the relationship between HRM practices and company's performances based on the assumption that company's performances will be more remarkable if the influence of human resource practices is observed as a synergic influence of joint activities, commonly named "bundles" instead of relying on a single and isolated variable (Tadić and Pivac, 2014). Furthermore, "bundles" should represent the blend of correlated and reliable human resource activities which should be supplementing collectively (Zaid et al., 2018b). Apart from that, the concept of GHRM bundle term refers to a set of coherent environmental human activities and practices that are closely related to one another, which is in line with the modern orientation of companies (Zaid et al., 2018b). Moreover, green HRM needs workforces to completely participate in the effort of attainment of greener (Wagner, 2013). Overall, the incorporation of practices is expected to unveil a greater impact on the improvement and performance of a company (Tadić and Pivac, 2014). Environmental activities generally tend to produce strategic resources which are believed to be problematic to replicate in research studies (Jabbour, 2015; Wagner, 2011). Nevertheless, this field of research is not unknown, as the relationship between the capabilities of an organization and its competitive advantage (an organization's sustainable performance) has been carefully debated in most of the established studies (Solovida et al., 2017). Although GHRM practices have begun to be widely employed in organizations due to their great benefits for the wider world (Sharma and Gupta, 2015), this is not the case for developing countries, where investigations into GHRM practices and their implementation in organizations are limited (Rehman et al., 2016). This is especially so in Palestine (Masri and Jaaron, 2017), where there is a lack of empirical researches on GHRM practices, implying that the concept is still new and developing. On-going studies are, therefore, very much encouraged in order to further strengthen and improve the existing literature on GHRM practices in Palestine. It is undeniable that the manufacturing sector has been regarded as the main source of environmental damage in developed and developing countries alike. This phenomenon requires an intensive assessment concerning their managerial activities, monitoring, and rectification processes (Rehman et al., 2016). As the sector majorly influences the national financial status (Marconi et al., 2016), there is an increasing need to reduce environmental effects of this sector through adopting much more environmental-friendly practices and procedures (O'Donohue and Torugsa, 2016). In order to manage ecological issues properly and effectively, there is an increasing need to adopt different green practices especially in the Palestinian manufacturing sector which is very important and beneficial to society (EQA, 2018). A prominent study by Masri and Jaaron (2017) claimed that there are a lot of manufacturing firms in Palestine, which have fallen behind and are yet to adopt any GHRM practices in their business approach. As is the case with other developing countries, there is, therefore, a widely agreed need to conduct further in-depth research into the implementation of GHRM in Palestine. Future research will assist regulators of this country in better introducing, promoting, and implementing these green practices via environmental protection campaigns, as well as having certain benefits for and exerting certain pressures on organizations. GHRM practices are an efficient approach in creating businesses sustainable. A GHRM bundle is the product, in fact, of a configurational view, in the sense that perceived interrelated parts of a whole in GHRM practices can be considered inherently related and reliable. This bundle can also be viewed as positively integrated with other factors in the company, such as its strategic orientation (Zaid et al., 2018a). Many scholars have focused on the nexus amongst GHRM bundle activities and organizational performance (Longoni et al., 2016), this research counts GHRM bundle as an adhesive set of GHRM activities, that has influences on a manufacturing organization's performance via green performance management and compensation (GPC), green training and involvement (GTI), and green hiring (Guerci et al., 2016). Previous GHRM studies investigated the impact of GHRM practices on ecological and economic issues (Longoni et al., 2016; Masri and Jaaron, 2017), but little research paid any heed to the benefits of GHRM bundle on firm output rather than on just singular practices (Tadić and Pivac, 2014). None of these studies examined the impact of GHRM bundle activities on the output of manufacturing organizations from an operational and from a social point of view, both of which are seen as necessary for helping organizations in decreasing the pollution of nature.

Responding to this need, this study aims at investigating GHRM practices as "a bundle", in the context of Palestinian manufacturing firms which are implementing green practices at a varying level. Specifically, this study, endeavors to explain the influence of adopting GHRM bundle activities on different dimensions of companies' performance. Furthermore, numerous researchers have pointed out the need to address several dimensions of organizational performance as important indicators in the study of environmental management (Younis et al., 2016). These include environmental performance (EP), economic performance (Ec.P), social performance (SP), and operational performance (OP). This research, therefore, measures firm performance in terms of these four main dimensions of organizational performance. This study is set out as follows: section two offers a set of hypotheses, as

well as offering a suitable theoretical framework for the study. A discussion of the methodology selected for this study is found in the next section, followed by a detailed presentation and discussion of the results. This paper concludes with the main contributions and the restrictions of this research, as well as with proposals for potential forthcoming research.

2. Hypotheses Development

As stated earlier, organizational performance is a multidimensional concept, so organizational performance in the current research defined as the real output from the adoption of GHRM bundle practices on the Ec.P, EP, SP, and OP of organizations. In this study, the EP is a description of the organizational capacity to minimize air emission and discharge, reduce hazardous and harmful material utilization, and lessen the incidence of environmental incidents (Zhu et al., 2013). The SP in this study defines the actual impacts of ecological practices on the social features associated to image of firms and their products from the view of several stakeholders (i.e., customers, suppliers, workforces, and the public) (Newman et al., 2016). The Ec.P in this study refers to the economic and marketing performances that are enhanced due to the incorporation of green practices, which improves organizational stature compared to industrial standards (Zhu et al., 2013). Lastly, OP is associated with the effectiveness of the organization's operations (i.e., declined scrap outputs, reduced delivery times, declined inventory levels, and enhanced capacity utilization) (Zhu et al., 2012). The different components of organizational performance and GHRM practices and their relationships will be discussed separately in detail below.

While it is believed that GHRM practices are actual in creating organizations' actions green, some researchers, such as Haddock-Millar et al. (2016) posit 'greening' operations as the key factors in enhancing Ec.P. Numerous scholars have proved that Ec.P's are driven via worker performances which are linked with environmentally-oriented activities (i.e., skills, participation, and inspiration) (Masri and Jaaron, 2017). Naturally, recruiting ecologically-oriented employees can be attractive to a firm, since such employees can more easily be recruited for environmental activities and will be more ready to undertake environmental training to improve their talents, inspiration, retaining, and job-related outputs (Teixeira et al., 2016), thereby increasing the economic performance of the organisations. It could be claimed, then, that pro-environmental initiatives are performed by means of the implementation of GHRM practices. Previous studies on GHRM domains managed to reveal a positive association among GHRM practices and Ec.P (O'Donohue and Torugsa, 2016). Margaretha and Saragih (2013) stated that firms tend to implement environmentally sustainable business activities that aim to deploy a green ideologies besides other goals such as saving costs, improved efficiencies, and altogether creating a healthy atmosphere for staff re at a greener corporate culture with the general goals of better efficiencies, decreased costs, and an altogether better atmosphere for employee involvement. Increasing profits and saving costs are the output of are the results of spreading environmental principles and values (Mehta and Chugan, 2015). To corroborate this, a large number of firms which have utilized GHRM managed to improve their profits, give better assurances for their representatives, and better Ec.P for green associations (Chiappetta and Jabbour, 2019). The second hypothesis for this study is, therefore, established as:

H1a: GHRM bundles positively affect Ec.P.

It should be mentioned, nevertheless, that the study of the effects of HRM on operations management has received little focus in the literature, with a scarcity of material to even generalize findings across different industries and countries. It is notably, that there are very few studies in the field which examine the direct association between GHRM bundle practices and OP and that these are only partial investigations. For instance, Jabbour et al. (2013) found that HRM practices have a positive effect on environmental management which was found to improve the OP's of Brazilian automotive firms. It can generally be stated, then, that the human side of environmental management certainly needs to receive more attention if it is regarded as essential for improving the OP of organizations. The GHRM practices, more importantly, emphases on exercises for sake of maintainable utilization of the resources which follow-on in greater efficiencies. In addition to this regard a smaller amount of wastage, enhanced Attitude regarding job work, individual's life, the lesser amount of costs, improved the performance of the employee. Hence it enhanced the commitment of employee plus job satisfaction towards the workplace and organization which ultimately enhanced the productivity of both parties (Bangwal and Tiwari, 2015). The third hypothesis of this study is, consequently formulated as:

H1b: GHRM bundles positively affect OP.

The concern of environmental sustainability performance is to save energy and at the same time reduce waste, pollution, and emissions. Moreover, it should be noted that GHRM needs workforces to be completely engaged in their attempt of getting greener (Wagner, 2013), or in other words, constantly practicing green endeavours in their working area. On a similar note, this practice should also be included in hiring, traineeship, and reward (Wood,

2014) in order to establish GHRM. According to Jadhav and Mantha (2013), GHRM bundle acts as a cohesive which links several activities as a synchronous unit. The common advantages among firms and employees should denote the sequence of reliable and inside dependable green HRM practices. Combination of activities reveals a superior influence on a firm's enhancement and output (Tadić and Pivac, 2014).
More importantly, Haddock et al. (2016) highlight the importance of tapping 'greening' functions as the key factor in enhancing firm EP's. Manufacturing firms opting for environment-tailored investments have been associated with superior manufacturing performances, whereby funds are channelled generously to technology aiming for pollution prevention (Miroshnychenko et al., 2017). Consequently, via understanding GHRM practices, organizations can enhance their EP in a sustainable way. Broadly speaking, a competitive edge can be gained by an organisation where the employees effectively become a green talent pool and where sustainability EP is considered and incorporated into business practices (Mehta and Chugan, 2015). These considerations lead to the following hypothesis:
H1c: GHRM bundles positively affect EP.
Indeed, scholars mentioned some evidence for organizations that invested in social responsibilities gained some benefits such as staff and customer satisfaction, and innovative employees hiring, these benefits improve organizations SP (Wagner, 2013). As declared by Rezaei-Moghaddam (2016), those manufacturing organizations that invested in social agendas took a significant phase through supporting GHRM. These agendas obviously concentrate on the ergonomics and human factors of workforces, to protect them from being exposed to harmful emissions. Additionally, having a notification role, it is claimed that incorporating environmental agendas will enhance the performance of manufacturing firms' sustainability (Khurshid and Darzi, 2016). Aggarwal and Sharma (2015) mention numerous advantages or benefits of GHRM in achieving broader objectives which include developing green employer image in order to attract green talents, enhance the brand image of the firm in the market, and act as a marketing strategy. Additionally, evidence was showed that organizations that adopt GHRM practices positively contribute to the wellbeing of their workforces as well as satisfying their ecological needs. Podgorodnichenko et al. (2019) have further confirmed the ideal positioning of HRM function towards aiding organizations in the bid of becoming more socially responsible. This is due to organisational sustainability being primarily founded upon the workforce's energy, knowledge, and skills; subject to investments, these elements collectively result in organisation environmental, social, and economic goals attainment. On a more important note, manufacturing organizations that have addressed green issues and implemented green initiatives are recommended to integrate environmental management into HRM (Masri and Jaaron, 2017). GHRM can particularly help firms to build a strong relationship with their consumers and suppliers (Khurshid and Darzi, 2016). Thus, the last hypotheses can formulate as:
H1d: GHRM bundles positively affect SP.

3. Methodology

The selected population was from manufacturing firms in the most polluted industrial sectors (i.e., chemical, food, and pharmaceuticals industries) in Palestine between the years 2017-2018. The main information of the manufacturing organization, such as the name of the organization, the number of employees, the year of establishment, etc. was obtained through the researcher's contact with the Palestinian Industries Federation (PFI). The total number of manufacturing organizations operating in the occupied Palestinian territories was 220 organizations. Since the objective of the current research is to examine the nexus between green practices and the organization's performance, a specific criterion has been set up, "targeting companies that implement environmental initiatives". The researcher then made a telephone call to all HR managers (the respondents) to inquire about any green initiatives implemented by them and to what extent. 160 manufacturing companies out of 220 companies showed their full approval questionnaire, where all these companies (respondent company) carry out environmental initiatives and also have an interest in environmental issues. The questionnaire was sent to five experienced jurists in the field of GHRM before sending the questionnaire to the respondents to verify the validity and consistency of the questionnaire (i.e., called pre-test). The experts made some comments and proved to be a useful tool. All the previous steps were taken before sending the questionnaire by e-mail to the HR managers of all the manufacturing firms operating in the occupied Palestinian territories that carry out the environmental initiatives (i.e., 160 manufacturing organizations). HR managers have been targeted because they are aware of and more familiar with the experimental study variables needed to examine the hypothesized relationships. For this purpose, the data were collected between November 2017 and January 2018 by sending the questionnaire via e-mail HR managers to all manufacturing firms that have agreed to participate in the questionnaire of 160 manufacturing firms. In the end, of the 160 firms surveyed, 124 responded to the questionnaire, and the remaining 36 did not respond. Of the 124

questionnaires, three non-completed questionnaires were found due to company constraints or t a large amount of missing data, so the researcher excluded them. According to Hair et al. (2017), it is advisable for the respondent to be excluded if the missing value greater than 50%. In the end, 121 completed questionnaires were obtained from HR managers, which is 75.6% response rate. Despite the small size of the sample of respondents, the researcher believes that it did not have harm or spoil the results of the study. According to Hair et al. (2017) recommendation, the sample size of 121 is considered satisfactory for conducting data analysis via PLS-SEM.

4. Data analysis and results.

The soft-modelling analysis technique called "partial least square of structural equation model" (PLS-SEM) was adopted by using the SmartPLS3.2.7 program to test H1a to H1d. This is a second-generation of the data analysis technique which is normally utilized to run a complicated model (Hair et al., 2017); besides, PLS-SEM can estimate the statistical characteristics and the hypotheses of a theoretical framework concurrently (Hair et al., 2017). It is a famous technique that has received noteworthy attention amongst scholars of several disciplines (Peng and Lai, 2012). In short, this study adopted the PLS approach, more precisely SmartPLS Version 3.2.7, to perform analysis and examine the measurement model as well as to test the hypothesized relationships. The selection was not only due to general reasons, which are the advantages of adopting PLS-SEM but because of SmartPLS has the ability to use and estimate both reflective and formative measures as well as a single item, and this feature is not available in the covariance-based approach (CB-SEM) such as EQS, SEPATH, LISREL and AMOS (Hair et al., 2017). Hence, the current study contains both formative and reflective constructs.

4.1 Assessment of measurement model

The measurement validity test is conducted to construct subject to their reflective model. These reflective variables are GH, GPC, GTI, EP, Ec.P, SP, and OP. Ramayah et al. (2018) stated that three major assessment principals at the outset are necessary for a reflective measurement model assessment. The three assessments are i) internal consistency reliability; ii) convergent validity, and iii) discriminant validity. This analysis sees the inspection of reflective construct items' loadings in the process of determining the close-off value lowest at 0.70 (Hair et al., 2017). Despite Fornell and Larcker (1981) view on Cronbach's alpha convergent, it is necessary that composite reliability (CR) and average variance extracted (AVE) is able to go beyond the minimum levels of 0.70, 0.70 and 0.50. More on Cronbach's alpha, Nunally and Bernstein (1994) view on CR's reliability is supported by Hair et al. (2017) who mentioned that unlike Cronbach's alpha, CR has an approximately closer similarity to internal consistency. Hence, with the thresholds' critical values taken into consideration, the complete summarization of validity measurement is shown in Table 1.

Table 1. Measurement properties of reflective constructs

Constructs	Factor Loading	(α)	CR	AVE
Green hiring	GH	0.760	0.893	0.806
Choosing candidates who are adequately aware of environmental issues to fill job positions..	0.902			
Employee attraction through environmental commitment.	0.893			
Green performance management & compensation	GPC	0.885	0.916	0.685
Managers understand their particular environmental objectives and duties.	0.788			
Senior directors assessment embraces green performance.	0.869			
Workforces assessment embraces green performance.	0.877			
Moral incentives and compensation for green performance..	0.816			
Different incentives based on green performance.	0.785			
Green training & involvement	GTI	0.909	0.936	0.786
Adequate ecological training to the employees to increase green consciousness.	0.900			

Providing environmental training to manager to increase environmental awareness.	0.907			
Job descriptions containing green duties..	0.900			
Workforces participation in solving green problems.	0.837			
Environmental performance	EP	0.896	0.923	0.708
Reduce the radiations of contaminated substances in nature.	0.859			
Decreased scrap rate of the materials during the manufacturing stage.	0.740			
Better usage of renewable energy and ecological oils.	0.778			
Improvement of firm's environmental situation.	0.913			
Decrease of frequency for environmental accident.	0.902			
Economic performance	Ec.P	0.905	0.925	0.638
Cost-saving for materials procurement.	0.760			
Cost-saving in energy-consuming..	0.750			
Cost-saving in scrap treatment..	0.844			
Cost-saving for ecological incidents.	0.762			
Increased sales and return on investment.	0.830			
Increased profits and growth.	0.850			
Increased market share.	0.787			
Operational performance	OP	0.920	0.941	0.760
Significantly enhanced its situation in the market.	0.810			
Assisted the firm design/develop superior goods.	0.895			
Assisted in dropping all kinds of wastes.	0.921			
Enhanced its chances in effectively marketing its goods in global markets.	0.927			
Significantly improved product quality.	0.800			
Social performance	SP	0.911	0.933	0.735
Employees' health and safety	0.867			
Encouragements and commitment for national employment.	0.892			
Development of economic activities.	0.870			
Improvement of social welfare.	0.849			
The decline of the harmful effect of goods and processes on the local community.	0.807			

The second criterion was the AVE test (Fornell and Larcker, 1981). In this method, discriminant validity occurs when the calculation of the square root of AVE is greater than the correlation between the factors making each pair. In other words, the value should be higher than the other off-diagonal elements in the rows and columns, which was the case in the correlation matrix of this study. This demonstrated the discriminant validity of the measurements used. Table 2 presents the findings of the variable correlation-square root of AVE.

Table 2. Variable correlation -root square of AVE (Fornel and Larcker result)

Variables	Ec.P	EP	GH	GPC	GTI	OP	SP
Ec.P	0.799						
EP	0.653	0.841					
GH	0.424	0.376	0.898				
GPC	0.538	0.492	0.743	0.828			
GTI	0.593	0.532	0.755	0.781	0.886		
OP	0.622	0.676	0.399	0.531	0.561	0.872	

Additionally, as proposed by Henseler et al. (2015), discriminant validity was also verified via the heterotrait - monotrait ratio (HTMT). Each HTMT ratio, as listed in Table 3, was less than the most restraining threshold of 0.85. This demonstrates a healthy discriminant validity property.

Table 3. HTMT Results

Variables	**Ec.P**	**EP**	**GH**	**GPC**	**GTI**	**OP**	**SP**
Ec.P							
EP	0.729						
GH	0.504	0.449					
GPC	0.586	0.542	0.790				
GTI	0.645	0.574	0.806	0.798			
OP	0.677	0.736	0.476	0.583	0.609		
SP	0.733	0.840	0.375	0.615	0.583	0.772	

In addition, a formative construct was created for GHRM bundle practices following from the most recent recommendation in the field (Longoni et al., 2016). With the purpose of assessing the collinearity issues, similar criterion needs to be adhered to when evaluating formative measurement models such as tolerance and VIF values. In detail, issues with collinearity could be indicated by a VIF value of 5 or higher (Hair et al., 2017), or instances of VIF valuing 3.3 or higher. The result lateral collinearity test is presented in Table 4. The independent variables which are GHRM bundle, external GSCM, and internal GSCM inner VIF variables to be tested for lateral multicollinearity are less than 5, indicating that multicollinearity is not potentially problematic for this research model. Figure 1 illustrates the final reliable and valid measurement model by using Smart-PLS Version 3.2.7.

Table 4. Formative construct assessment.

Formative construct	Reflective factors	Item weight	t-value	VIF
GHRM bundle	GH	0.264	8.093	1.718
	GTI	0.440	12.278	1.946
	GPC	0.530	14.471	2.885

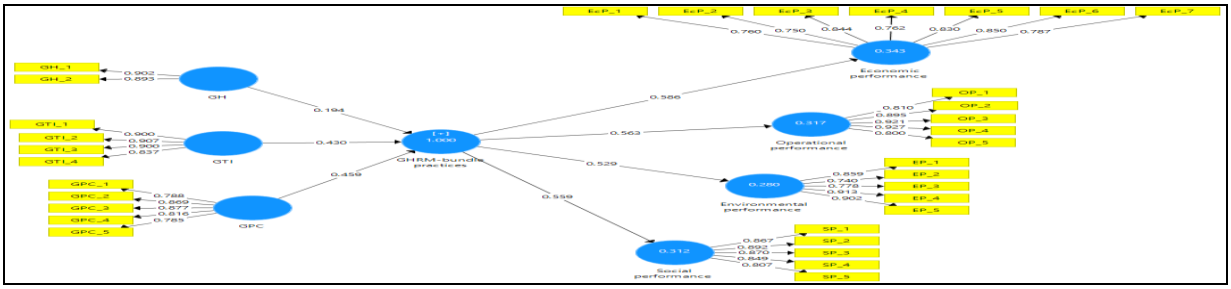

Figure 1. Measurement assessment model results

4.2 Structural model results

Having examined the measurement model's reliability and validity, the next step is to evaluate the structural model. In doing so, six different tests were performed to evaluate the inner model as suggested by Ramayah et al. (2018) and Hair et al. (2017). Those different tests are predictive relevance (Q^2), coefficient of determination (R^2), effect size (f^2), and finally path coefficient. Firstly, the structural model utilizing the bootstrap procedure was conducted, using 5000 rounds of resampling and the scale and the importance of the structural paths were found to be consistent. Secondly, Stone–Geisser's Q^2 test (Hair et al. 2017) was administered to check for the predictive relevance of the

model, since all cross-validity redundancies of the endogenous latent variables were above zero as shown in Table 5, this supports the claim that this study model has an adequate ability to predict. Thirdly, the quality of the structural model depends on the values of R^2, which demonstrate the ability of the exogenous variables in explaining the endogenous variables. Thus, based on the results of this study, all values of R^2 have fulfilled Chin's (1998) criteria (see Table 5). After evaluating the R^2, determining the change in R^2 by assessing the f^2 to see whether the effect of a particular exogenous variable on an endogenous variable a substantial effect has is important (Ramayah et al., 2018). Moreover, it is worth mentioning that this study does not examine the Goodness of Fit (GoF), GoF cannot be applied to formatively measured models and does not castigate parameterization attempts (Ramayah et al., 2018). The decision to use GoF is still at its infancy and is not an obligation to be applied in PLS-SEM situation.

Table 5. Q^2, R^2, and f^2 results

Variables	R^2 adj	Q^2	f^2 (EP)	f^2 (Ec.P)	f^2 (OP)	f^2 (SP)
GHRM bundle	----------	0.584	0.522	0.484	0.464	0.454
EP	0.272	0.179	-----	----	-------	--------
Ec.P	0.335	0.194	-------	--------	-------	
OP	0.309	0.218	------	------	---------	
SP	0.304	0.201	------	------	------	

Overall, the results for adjusted variance referring to the EP, Ec.P, OP, and SP (R^2 adjusted) were 0.272, 0.335, 0.309, and 0.304, respectively. Finally, the firm's size and ISO 14001 certification were taken as control variables. Returning to the sets of hypotheses presented above, Table 6 showed that the association between GHRM bundle practices and Ec.P was established via H1a: ($\beta = 0.586$, $t = 7.205$, $p< 0.000$). Similarly, H1b predicted that GHRM bundle practices will positively affect OP. The study's result corroborated this relationship ($\beta = 0.563$, $t = 7.552$, $p< 0.000$). H1c revealed that GHRM bundle practices were positively associated with EP by ($\beta = 0.529$, $t = 6.128$, $p< 0.000$). Finally, H1d anticipated a positive relationship between GHRM bundle practices and SP. The study results emphasized the proposed relationship; thus, the hypothesis was established ($\beta = 0.559$, $t = 7.816$, $p< 0.000$). It can, therefore, be concluded that all hypotheses were found to be significant.

Table 6. Structural model results.

Path	(β)	Standard. Error	t- value	p-value	Results
GHRM bundle → EP	0.529	0.086	6.128	0.000	Supported
GHRM bundle → Ec.P	0.586	0.081	7.205	0.000	Supported
GHRM bundle → OP	0.563	0.075	7.552	0.000	Supported
GHRM bundle → SP	0.559	0.071	7.816	0.000	Supported

5. Discussion of the main findings

The findings from the current study showed significant relations amongst GHRM bundle practices, EP, Ec.P, SP, and OP respectively. The statistical outputs indicated that GHRM bundle practices did, indeed, lead to enhance four dimensions of organizational performance (i.e., EP, Ec.P, SP, and OP). This finding is confirmed by Renwick et al. (2013) who argued for manufacturing organizations in developing countries proactively adopting the green element in their HRM practices. Paillé et al. (2014) demonstrated that implementation of GHRM can improve a firm's EP among Chinese manufacturing organizations, especially in terms of their focus on adapting human resource activities to incorporate their environmental strategies. It has also been observed that human resource managers can improve environmental culture by establishing a workforce that is interested in environmental issues, and involve their employees in such practices; thereby improve organization EP (Mousa and Othman, 2020). The vital role of

GHRM in promoting environmental awareness and sustainability within a company and the positive impact on a firm's EP was suggested by Jabbour (2011). Anusingh and Shikha (2015) argued that GHRM practices such as green training, employee involvement, and green rewards also have a positive effect on EP's among Indian manufacturing firms. It has also been suggested that the deployments of ecological ideologies and values through GHRM practices may incubate the EP based motivation and skills of the workforces (Longoni et al., 2016), creating opportunities for the workforces to contribute in the ecological sustainability of the organization (Zaid et al., 2018a). Assurances of GHRM practices via green training and recognition of green efforts by employees will lead to skills establishment and allow them the chances for green initiative involvement (Shen et al., 2018). Such benefits inevitably improve their psychological availability and career satisfaction (Chaudhary, 2019), thereby upgrading their organisational EP. Besides, implementing optimal green hiring practices are crucial for organizations as environmentally-cognisant bosses are attractive features for potential employees looking to contribute to environmentally-responsible initiatives. This will inevitably become prized contribution towards organisational environmental objectives and improved sustainability EP (Zaid et al., 2018a).

In terms of Ec.P, a positive nexus was established between the GHRM bundle and Ec.P. This result supports suggestions from prior literature that underlined GHRM's vital role in improving an organization's EP and Ec.P concurrently (Renwick et al., 2013). The higher the likelihood for positive financial outcomes to accumulate in organizations results in increased employee capacity and drive. This allows them the contributory opportunities towards attaining the organisational vision for environmental sustainability. Subsequently, organizations will find it more receptive for maximizing their profits and allocating more cost-management chances that only driven environmental management is capable of providing (O'Donohue and Torugsa, 2016). In the long-term, the economic benefits of GHRM practices tend to outweigh the associated financial costs largely because the economic value is added by having an inspired and dedicated green workforce (Weber, 2008). Rani and Mishra (2014) concluded that many benefits were accrued by organizations when adopting GHRM practices such as costs reduction, better employee involvement, and operating in an environmentally sustainable fashion. Pandey et al. (2016) emphasized that firms which implement environmental practices are able to enjoy better sales and costs reductions through obtaining a greater volume of sales. Although it is true that many green practices need high investment, large companies may save costs by utilizing recyclable products and energy efficient lighting, and by minimizing the use of paper for printing (Pandey et al., 2016). Many studies also argued that the greening of a company has a beneficial impact on its community image (e.g. Rezaei-Moghaddam, 2016; Wagner, 2013). In addition, Chiappetta et al. (2017) stated that GHRM was likely to positively affect a company's EP, as well as the overall welfare of staff. Wolf (2014) found that the adoption of sustainable green practices among German manufacturing organizations positively affected these organizations' SP, where staff integration was allowed to affect the process. In summary, these results strongly suggest that GHRM bundle practices have significant potential to enhance a firm's performance through sustainable means. It could be said that Palestinian manufacturing firms are in a "win-win" relationship if they actively seek opportunities to implement GHRM bundle practices and will lead them to a positive EP, Ec.P, SP, and OP.

References

Aggarwal, S. and Sharma, B. (2015) 'Green hrm: Need of the hour. *International Journal of Management and Social Science Research Review'*, Vol. No.18, pp. 63-70.

Al-Sheyadi, A., Muyldermans, L. and Kauppi, K. (2019) 'The complementarity of green supply chain management practices and the impact on environmental performance', *Journal of environmental management*, Vol. 242, pp 186-198.

Ann, G., Zailani, S. and Abd Wahid, N. (2006) 'A study on the impact of environmental management system (EMS) certification towards firms' performance in Malaysia', *Management of Environmental Quality: An International Journal*, Vol. 17 No. 1, pp 73-93.

Anusingh, L. and Shikha, G. (2015) 'Impact of green human resource factors on environmental performance in manufacturing companies: an empirical evidence', *International Journal of Engineering and Management Sciences*, Vol. 6 No.1, pp 23-30.

Bangwal, D. and Tiwari, P. (2015) 'Green HRM–A way to greening the environment', *Journal Business Management*, Vol. 17, pp 45-53.

Chaudhary, R. (2019) 'Green human resource management in Indian automobile industry', *Journal of Global Responsibility*, Vol. 10 No. 2, pp 161-175.

Chiappetta, C. J. and Jabbour, A. B. L. d. S. (2019) '7 Fundamentals of human resource management for environmentally sustainable supply chains', In Sarkis (Eds.), *Handbook on the Sustainable Supply Chain*, Edward Elgar Publishing Limited, UK, pp. 105-118

Chiappetta Jabbour, C. J., Mauricio, A. L. and Jabbour, A. B. L. d. S. (2017) 'Critical success factors and green supply chain management proactivity: shedding light on the human aspects of this relationship based on cases from the Brazilian industry', *Production Planning & Control,* Vol. 28 No. 8, pp 671-683.

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.

EQA. (2018). *Environment sector strategy: executive summary*. [online] Technical report. http://environment.pna.ps/ar/index.php?p=reports (Accessed 10 June 2018).

Fornell, C. and Larcker, D. F. (1981) 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of marketing research*, pp 39-50.

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,* Vol. 27 No. 2, pp 262-289.

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,* Vol. 27 No. 2, pp 192-211.

Hair Jr, J. F., Sarstedt, M., Ringle, C. M. and Gudergan, S. P. (2017) *Advanced Issues in Partial Least Squares Structural Equation Modeling*, SAGE Publications, USA.

Henseler, J., Ringle, C. M. and Sarstedt, M. (2015) 'A new criterion for assessing discriminant validity in variance-based structural equation modeling', *Journal of the academy of marketing science,* Vol. 43 No. 1, pp 115-135.

Jabbour, C. (2011) 'How green are HRM practices, organizational culture, learning and teamwork? A Brazilian study', *Industrial and Commercial Training*, Vol. 43 No. 2, pp 98-105.

Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Govindan, K., Teixeira, A. A. and de Souza Freitas, W. R. (2013) 'Environmental management and operational performance in automotive companies in Brazil: the role of human resource management and lean manufacturing', *Journal of Cleaner Production,* Vol. No. 47, pp 129-140.

Jabbour, C. J. C. (2015) 'Environmental training and environmental management maturity of Brazilian companies with ISO14001: empirical evidence', *Journal of Cleaner Production*, Vol. 96, pp 331-338.

Jabbour, C. J. C., Sarkis, J., de Sousa Jabbour, A. B. L., Renwick, D. W. S., Singh, S. K., Grebinevych, O. and Godinho Filho, M. (2019) 'Who is in charge? A review and a research agenda on the 'human side'of the circular economy', *Journal of Cleaner Production,* Vol. 222, pp 793-801.

Jadhav, J. R. and Mantha, S. S. (2013) 'Practice Bundles for Integrated Green-Lean Manufacturing Systems', *International Journal of Computer Applications,* Vol. 7, pp 975–8887.

Khurshid, R. and Darzi, M. A. (2016) 'Go green with green human resource management practices', *Clear International Journal of Research in Commerce & Management,* Vol. 7 No. 1.

Longoni, A., Luzzini, D. and Guerci, M. (2016) 'Deploying Environmental Management Across Functions: The Relationship Between Green Human Resource Management and Green Supply Chain Management', *Journal of Business Ethics*, Vol. 151 No. 4, pp 1-15.

Malik, A., Pereira, V. and Tarba, S. (2019) 'The role of HRM practices in product development: Contextual ambidexterity in a US MNC's subsidiary in India', *The International Journal of Human Resource Management*, Vol. 30 No. 4, pp 536-564.

Marconi, N., de Borja Reis, C. F. and de Araújo, E. C. (2016) 'Manufacturing and economic development: The actuality of Kaldor's first and second laws', *Structural Change and Economic Dynamics,* Vol. 37, pp 75-89.

Margaretha, M. and Saragih, S. (2013) 'Developing new corporate culture through green human resource practice'. Paper Presented at the *International Conference on Business, Economics, and Accounting*. 20 – 23 March 2013. Bangkok, Thailand.

Masri, H. A. and Jaaron, A. A. (2017) 'Assessing green human resources management practices in Palestinian manufacturing context: An empirical study', *Journal of Cleaner Production,* Vol. 143, pp 474-489.

Mehta, K. and Chugan, P. K. (2015) 'Green HRM in pursuit of environmentally sustainable business', *Journal of Industrial and Business Management,* Vol. 3 No. 3, pp 74-81.

Miroshnychenko, I., Barontini, R. and Testa, F. (2017) 'Green practices and financial performance: A global outlook', *Journal of Cleaner Production,* Vol. 147, pp 340-351.

Mousa, S. K., & 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, 118595.

Naveh, E. and Marcus, A. A. (2004) 'When does the ISO 9000 quality assurance standard lead to performance improvement? Assimilation and going beyond', *IEEE transactions on Engineering Management*, Vol. 51 No. 3, pp 352-363.

Newman, A., Miao, Q., Hofman, P. S. and Zhu, C. J. (2016) 'The impact of socially responsible human resource management on employees' organizational citizenship behaviour: the mediating role of organizational identification', *The international journal of human resource management*, Vol. 27 No. 4, pp 440-455.

O'Donohue, W. and Torugsa, N. (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*, Vol. 27 No. 2, pp 239-261.

Paillé, P., Chen, Y., Boiral, O. and Jin, J. (2014) 'The impact of human resource management on environmental performance: An employee-level study', *Journal of Business Ethics*, Vol. 121 No. 3, pp 451-466.

Pandey, S., Viswanathan, V. and Kamboj, P. (2016) 'Sustainable green HRM–importance and factors affecting successful implementation in organizations', *International Journal of Research in Management and Business*, Vol. 2 No. 3, pp 11-29.

Peng, D. X. and Lai, F. (2012) 'Using partial least squares in operations management research: A practical guideline and summary of past research', *Journal of Operations Management*, Vol. 30 No. 6, pp 467-480.

Podgorodnichenko, N., Edgar, F. and McAndrew, I. (2019) 'The role of HRM in developing sustainable organizations: Contemporary challenges and contradictions', *Human Resource Management Review*.

Ramayah, T., Cheah, J., Chuah, F., Ting, H. and Memon, M. A. (2018) *Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0: An Updated and Practical Guide to Statistical Analysis*, Pearson, Malaysia.

Rani, S. and Mishra, K. (2014) 'Green HRM: Practices and strategic implementation in the organizations', *International Journal on Recent and Innovation Trends in Computing and Communication*, Vol. 2 No. 11, pp 3633-3639.

Rehman, M. A., Seth, D. and Shrivastava, R. (2016) 'Impact of green manufacturing practices on organizational performance in Indian context: An empirical study', *Journal of Cleaner Production*, Vol. 137, pp 427-448.

Ren, S., Tang, G. and Jackson, S. E. (2018) 'Green human resource management research in emergence: A review and future directions', *Asia Pacific Journal of Management*, Vol. 35 No. 3, pp 769-803.

Renwick, D. W., Redman, T. and Maguire, S. (2013), "Green human resource management: A review and research agenda", *International Journal of Management Reviews*, Vol. 15 No. 1, pp 1-14.

Rezaei-Moghaddam, K. (2016) 'Green Management of Human Resources in Organizations: An Approach to the Sustainable Environmental Management', *Journal of Agricultural Technology*, Vol. 12 No. 3, pp 509-522.

Russo, M. V. and Fouts, P. A. (1997) 'A resource-based perspective on corporate environmental performance and profitability', *Academy of Management Journal*, Vol. 40 No. 3, pp 534-559.

Sharma, S., and Gupta, N. (2015) 'Green HRM: an innovative approach to environmental sustainability'. Paper Presented at the *Twelfth AIMS International Conference on Management*. 2–5 January. Calicut, India.

Shen, J., Dumont, J., and Deng, X. (2018) 'Employees' perceptions of green HRM and non-green employee work outcomes: The social identity and stakeholder perspectives', *Group & Organization Management*, Vol. 43 No. 4, pp 594-622.

Solovida, G. T., Solovida, G. T., Latan, H. and Latan, H. (2017) 'Linking environmental strategy to environmental performance: Mediation role of environmental management accounting', *Sustainability Accounting, Management and Policy Journal*, Vol. 8 No. 5, pp 595-619.

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.

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*, Vol. 56 No. 1, pp 31-55.

Teixeira, A. A., Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Latan, H. and de Oliveira, J. H. C. (2016) 'Green training and green supply chain management: evidence from Brazilian firms', *Journal of Cleaner Production*, Vol. 116, pp 170-176.

Wagner, M. (2011) 'Environmental management activities and sustainable HRM in German manufacturing firms–incidence, determinants, and outcomes', *German Journal of Human Resource Management*, Vol. 25 No. 2, pp 157-177.

Wagner, M. (2013) 'Green'human resource benefits: do they matter as determinants of environmental management system implementation?', *Journal of Business Ethics,* Vol. 114 No. 3, pp 443-456.

Weber, M. (2008) 'The business case for corporate social responsibility: A company-level measurement approach for CSR', *European Management Journal,* Vol. 26 No. 4, pp 247-261.

Wolf, J. (2014) 'The relationship between sustainable supply chain management, stakeholder pressure and corporate sustainability performance', *Journal of Business Ethics,* Vol. 119 No. 3, pp 317-328.

Wood, G. (2014). *Human resource management and the institutional perspective*. Routledge.

Younis, H., Younis, H., Sundarakani, B., Sundarakani, B., Vel, P. and Vel, P. (2016) 'The impact of implementing green supply chain management practices on corporate performance', *Competitiveness Review,* Vol. 26 No. 3, pp 216-245.

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.

Zaid, A. A., Jaaron, A. A. M. and Bon, A. T. (2018b) 'Green Human Resource Management Bundle Practices and Manufacturing Organizations for Performance Optimization: a Conceptual Model', *The International Journal of Human Resource Management*, Vol. 7 No. 3, pp 87-91.

Zhu, Q., Sarkis, J. and Lai, K. H. (2012) 'Examining the effects of green supply chain management practices and their mediations on performance improvements', *International journal of production research*, Vol. 50 No. 5, pp 1377-1394.

Zhu, Q., Sarkis, J. and Lai, K. (2013) 'Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices', *Journal of Purchasing and Supply Management*, Vol. 19 No. 2, pp 106-117.

Acknowledgements

A special thanks for Palestine Technical University (PTUK)–Kadoorei for supporting this research.

Biographies

Ahmed A. Zaid is assistant professor at the Industrial Management Department of Palestinian Technical University (PTUK). He received his PhD degree in Operations and Supply Chain Management from the Universiti Tun Hussein Onn Malaysia in 2019 and MS in Industrial System Engineering from King Fahd University of Petroleum & Minerals (KFUPM), Dhahran - Saudi Arabia. Due to his excellent academic performance and participation in extracurricular activities, he received several awards including "Gold Medal for Best Publication Award Category 2019" and "Silver Medal for graduation on Time 2019" at Universiti Tun Hussein onn Malaysia. His research activities have focused on human resource management, service quality, logistics and supply chain management, quantitative method, and PLS-SEM.

Abdul Talib Bon is a professor of Production and Operations Management in the Faculty of Technology Management and Business at the Universiti Tun Hussein Onn Malaysia since 1999. He has a PhD in Computer Science, which he obtained from the Universite de La Rochelle, France in the year 2008. His doctoral thesis was on topic Process Quality Improvement on Beltline Moulding Manufacturing. He studied Business Administration in the Universiti Kebangsaan Malaysia for which he was awarded the MBA in the year 1998. He's bachelor degree and diploma in Mechanical Engineering which his obtained from the Universiti Teknologi Malaysia. He received his postgraduate certificate in Mechatronics and Robotics from Carlisle, United Kingdom in 1997. He had published more 150 International Proceedings and International Journals and 8 books. He is a member of MSORSM, IIF, IEOM, IIE, INFORMS, TAM and MIM.

Ayham Jaaron is currently a Senior Lecturer in Business and management at the Department of Management and Entrepreneurship of De Montfort University, Leicester. Before this, he was an Associate Professor at the Industrial Engineering Department of An-Najah national University in Palestine 2010-2019. During this time, Ayham served as Head of Industrial Engineering Department for three consecutive years 2011-2014. He led the largest ABET Accreditation project in the region for nine engineering programs simultaneously at An-Najah National University, that resulted in a successful ABET Accreditation process. His research activities have recently focused on strategic management, sustainable manufacturing and Industry 4.0, service quality, resource utilization, organizational resilience, and green human resources management in the manufacturing and service sectors.