



Tomas Bata University in Zlín
Library

Green HRM promotes higher education sustainability: a mediated-moderated analysis

Citation

ABBAS, Zuhair, Shagufta SARWAR, Mohsin Abdur REHMAN, Roman ZÁMEČNÍK, and Muhammad SHOAIB. Green HRM promotes higher education sustainability: a mediated-moderated analysis. *International Journal of Manpower* [online]. Emerald Group Holdings, 2021, [cit. 2023-06-19]. ISSN 0143-7720. Available at

<https://www.emerald.com/insight/content/doi/10.1108/IJM-04-2020-0171/full/html>

DOI

<https://doi.org/10.1108/IJM-04-2020-0171>

Permanent link

<https://publikace.k.utb.cz/handle/10563/1010734>

This document is the Accepted Manuscript version of the article that can be shared via institutional repository.



TBU Publications

Repository of TBU Publications

publikace.k.utb.cz

Green HRM promotes higher education sustainability: a mediated-moderated analysis

Zuhair Abbas

Department of Business Administration, Faculty of Management and Economics, Tomas Bata University in Zlin, Zin, Czech Republic

Shagufta Sarwar

Business Division, Higher Colleges of Technology, Abu Dhabi, United Arab Emirates

Mohsin Abdur Rehman

Department of Marketing, Management and International Business, Oulu Business School, University of Oulu, Oulu, Finland

Roman Zámečník and Muhammad

Shoaib Department of Business Administration, Faculty of Management and Economics, Tomas Bata University in Zlin, Zlín, Czech Republic

Corresponding author: Zuhair Abbas can be contacted at: abbas@utb.cz

Abstract

Purpose - In the contemporary world, where sustainability at higher education is at the forefront, the ever-changing business ecosystem nurtures a new drift towards economic, environmental and social performance. This study aims to measure the impact of green human resource management (GHRM) practices on sustainability in the higher education of a developing country context through a theoretical aspect of Resource-Based View (RBV).

Design/methodology/approach - This study adopted a quantitative approach to propose and test a model based on predictors of sustainability. The survey approach received 190 responses from employees (faculty and non-faculty members) working as a full-time in the 40 higher education institutions (HEIs) of Pakistan. The structural and measurement model was calculated using SmartPLS.

Findings - The results show that “green training and development” (GTD) and “top management commitment towards greening workforce (TMCGW)” have a positive relationship with sustainability while green recruitment and selection (GRS) was not supported by sustainability. The mediating effect of TMCGW plays a crucial role between GTD and sustainability. Also, this study contributes through the moderating interaction effect of Gender between GTD and sustainability. Overall the GHRM practices promote employee green behavior and sustainability.

Originality/value - The proposed research model in the current study is a substantial gap in the literature and exploring this connection requires new theoretical frameworks. To bridge this literature gap, this study examined the role of GHRM on sustainability at micro-level (employee perspective) through a theoretical aspect of RBV in the developing country higher education context of Pakistan. Importantly, this study enhances the understanding of the emerging global wave of green mobility and highlights the impact of GHRM practices on sustainability through perception of academic professionals.

Keywords: GHRM, sustainability, HEIs, Pakistan, greening workforce, top management commitment

Introduction

Policymakers, managers and practitioners are concerned about environmental issues and implement the eco-friendly practices that mitigate a climate change in Asian countries (**Renwick et al, 2013**). A recent study by **Zahid et al. (2020)** reveals that sustainability has drawn more attention in the corporate sector. Even though the topic seemed a bit neglected and overlooked in higher education institutions (HEIs), the past decades have revealed a rapidly increasing familiarity of sustainability in almost every field of life. Likewise, other important factors, this has also evolved the context of HEIs to address the ongoing challenges of another important field of study, particularly, in the educational setting (**Findler et al., 2019**).

It is worth noting that HEIs are capable and responsible for educating stakeholders of society in the greening of environment, which can foster current as well as future generations realizing the significance of pro-environmental behavior (**Rayner and Morgan, 2018**). This is one of the emerging fields of research with multiple research contexts in Kingdom of Saudi Arabia, Asia-Pacific (**Naeem and Neal, 2012**), Brazil (**Cronemberger de Araujo Goes and Magrini, 2016**) and Pakistan (**Gilal et al., 2019**). In majority of contexts, the human resource department is concerned to be responsible for initiating, implementing and maintaining the practices which are mentioned above (**Foroutan et al., 2018**). Hence, another emerging challenge for institutions and corporations is to attract, retain and develop such high professional and skilled workforce who could effectively achieve such dynamic challenges of environmentally friendly sustainability (**Natalia et al., 2018**).

Employee behavior is crucial for the control of the environmental degradation that ensures green environmental performance in the context of higher education (**Mohamed et al., 2020**). A recent study has shown that HEIs are usually operating as business organizations (**Al-Zawahreh et al, 2019**). However, **Gilal et al (2019)** revealed that the green human resource management (GHRM) practices boost employee green behavior to mitigate the environmental issues at the workplace in the context of HEIs of Pakistan. The higher education sector, as being knowledge-intensive and dynamic, needs faculties and professionals to function smoothly. Hence, to accomplish an ecologically-compliant HEI, faculty and professionals, both need to play their part in terms of developing and implementing green supporting policies and procedures, especially in a nation like Pakistan which is poised to become one of the world's fastest-growing economies by 2022 (**Rehman et al, 2019**). Research on the GHRM practices has increased steadily in the last 20 years and provides substantial knowledge of employee green behavior in response to the changing economic, environmental and social conditions at the workplace. Human resource scholars continuously exploring green HRM initiatives in employee behavior (**Yong et al., 2019; Fawehinmi et al, 2020**), higher education as a context is important to study accordingly. The implications for research and management are noteworthy, as they help us to better understand the interlink between the GHRM practices and top management commitment and the way in which they affect sustainability in the higher educational context. They can enable managers to understand how the GHRM practices promote sustainability. Furthermore, the current study implies that top management commitment influences the sustainability outcomes derived from the GHRM practices in the higher educational sector in Asia. The current study extends the previous literature on GHRM by representing an exploratory investigation into the facet level commitment exhibited by top management, examining how the GHRM practices predict sustainability.

The current study addresses numerous research gaps; firstly, **Ren et al (2018)** suggested investigating the antecedents, mediators, moderators of the GHRM phenomenon. Hence, we respond to this call

for research to address the research gap by applying top management commitment towards greening workforce (TMCGW) as a mediator between the GHRM practices and sustainability. Secondly, this study also bridges the research gap by examining “gender” as a moderator to evaluate the perception of both male and female employees to know about the adoption of GHRM practices at the workplace. Hence, the current study aims to answer the below research questions in the higher education context of a developing country with resource-based view (RBV) as theoretical framework:

RQ1. Do the GHRM practices promote sustainability?

RQ2. What is the role of TMCGW in promotion of sustainability?

Literature review

Theoretical perspective of the RBV

The current research has been based on the RBV theory that argues that an organization contains both tangible and intangible assets that help a firm to create a kind of competitive advantage and sustain in the competition of industry. The tangible assets can easily be determined as fixed assets, ownership of building, machinery, land and other valuable resources and the intangible assets include the brand name and equity, employee competency and other aspects (**Wernerfelt, 1984**).

Furthermore, there has been an increased interest in the study of the organizational resource, formulating and implementing sustainable business practices and such kind of relationship has been usually studied using the RBV theory (**Jabbour et al., 2008**). Moreover, as concluded explicitly by **Jackson and Seo (2010)**, companies that introduce the sustainability practices within their culture, especially within the human resource management, tend to be more profitable. Therefore, it can be concluded that the introduction of the sustainability practices depends on mobilizing the internal resources both tangible (financial resources) and intangible (people ability and skills) ones (**Wright et al., 2001**). The studies reviewing the implications of RBV within the HRM domain appear to have suggested that the RBV perspective has helped companies to successfully integrate both practices and strategies of management and HR (**Wright et al., 2001**).

GHRM and sustainability

The organizations are increasingly responding to the call for contributing to sustainability. To achieve this objective, companies are more likely to rely on the valuable internal resource, which is their department of human resource management to implement sustainability vision (**Wirtenberg et al., 2007**). HRM plays a central role in coping with various levels of pressure from both governmental and international bodies such as institutions, evolutionary developments, organizational renewal, organizational effectiveness (**Bombiak and Marciniuk-Kluska, 2018**). Therefore, a manager within the HRM department is likely to attribute a particular focus to bring the change and enhance the company's efforts towards sustainability (Gim et al., 2021). The company employees are seen as an invaluable resource for the company who implement and execute the organization's vision and mission (**Yong et al., 2019**). Therefore, in order to contribute to an ongoing debate of the role of sustainable HRM practices in bringing the organizational suitability, the current research study employs RBV as underpinning theory to develop and conclude the empirical evidence on the relationship. However, few studies indicate that GHRM is one of viable tools available to the organization that can be better

optimized in generating the organizational strategies that will help them to achieve the sustainability practices (Renwick et al., 2016).

Green recruitment and selection

Companies can recruit those candidates who take care of environment at the workplace (Jabbour et al., 2008). According to Siyambalapitiya et al. (2018), to recruit green-focused employees, the environmental policies of green recruitment strategies are likely to play a key role in attracting the most appropriate talent. The environmental prestige and identity of a hiring agency are also essential considerations in recruitment due to expanded knowledge of the climate (Renwick et al., 2013). A company's environmental success can be used for recruiting interest in the procurement phase (Jabbour et al., 2010). Web-based recruitment helps recruiters to have additional details about their environmental protection practices relative to conventional outlets such as newspaper ads or brochures (Renwick et al., 2013). Hence it can hypothesize that:

H1. Green recruitment and selection (GRS) is positively associated with Sustainability.

Green training and development

Green training and development (GTD) contribute to an organization's sustainable approach, and it is also contemplated to have an indispensable significance for any company (Pinzone et al., 2019). The training programs that are designed to motivate the hired employees have shown to improve the environmental performance of a company (Renwick et al., 2016), and this motivated staff can support a firm in achieving the green opportunities in different business functions (Rani and Mishra, 2014). The organizations intend to achieve environmental sustainability by integrating several dimensions of GHRM and successfully implementing these practices system-wide. Moreover, the key objective of the firms is to ensure workforce greening for their continued sustainable growth (Jabbour et al., 2010). Consequently, it is essential to have employee commitment for social and environmental responsibility, as it will also support the responsibilities of employees towards environmental objectives, and that can be taken as an essential feature for improvement of the environmental management system outcomes. There are many benefits of such systems such as pollution reduction, efficient resource usage and waste reduction. Hence it can hypothesize that:

H2. GTD is positively associated with Sustainability.

Mediating role of TMCGW

The position of top management is one of the most crucial internal factors for strategy development and execution (Singh et al., 2021). As for top management commitment, businesses should be capable of executing their green initiatives successfully or, from this study's viewpoint, the GHRM activities - to achieve good environmental results (Spencer et al., 2013). Despite the progress in the top management commitment literature, the research is significantly limited and requires further exploration with GHRM as a useful mediator (Yusliza et al., 2019). Existing research have been calls for further research to better understand the top management commitment as a potential mediator under the GHRM phenomenon with sustainability (Ren et al., 2021; Yong et al., 2019; Muktadir et al., 2020). Since the literature is almost silent on the mechanism of GHRM practices on sustainability (Mousa and Othman, 2020).

Several scholars suggested for the inclusion of top management commitment as a mediating variable between GHRM and sustainability. More importantly, in the existing literature, prior research investigated the direct relationship of top management commitment with GHRM practices (**Yusliza et al., 2019**). They argued that the direct relationship between GHRM and sustainability cannot declare 100% reliability, as this association might be influenced by a number of several important factors neglected by previous research and is far more complex than it seems, and there is a lack of comprehensive mediation mechanism that connects GHRM with sustainability (**Moktadir et al., 2020**). Responding to aforementioned calls for research, the present study focuses on top management commitment as a potential mediator between GHRM practices and sustainability, thus making a significant contribution to the HRM literature.

H3. TMCGW is positively associated with Sustainability.

H4. GRS is positively associated with TMCGW.

H5. GTD is positively associated with TMCGW.

H6. TMCGW mediates the relationship between GRS and Sustainability. H7. TMCGW mediates the relationship between GTD and Sustainability.

H7. TMCGW mediates the relationship between GTD and Sustainability

Moderating role of gender

The personality traits and values affected by a crucial factor of gender together with GHRM boost green behavior at the workplace (**Greening and Turban, 2000**). Women engage in green eco-friendly behavior more than men and they consider it as social and moral concern to promote sustainability (**Wong and Wan, 2011**). The existing literature reflects that firms having more female employees reveal a higher level of involvement in CSR, including environmental initiatives and work for society (**Fernandez-Feijoo et al., 2014**). Environmental literature reported major differences in gender (**Chang and Wu, 2015**), stating that gender plays a crucial role in the relationship between GHRM and sustainability.

H8. The effect of GRS on Sustainability is moderated by Gender.

H9. The effect of GTD on Sustainability is moderated by Gender.

Research methodology

Sample and data collection procedure

The unit of analysis (population) were employees (faculty and non-faculty members) working in the higher education institutions HEIs of Pakistan. Data was collected from 190 employees working in 40 HEIs. The current study focused on full time employees; that means unit of analysis was presumed to individuals. Importantly, our study examined GHRM practices at the micro-level because employees are considered to be an important resource in adoption of GHRM practices. Consequently, this present study investigates employee perspectives on how and under what conditions, GHRM may promote sustainability. A total of forty HEIs participating in the research were selected from all four provinces of Pakistan, e.g. Balochistan, KPK, Punjab and Sindh. It was ensured that the respondents were working

full time and have spent a certain period with the HEI and thus are presumed to be familiar with the GHRM initiatives. Purposive sampling was adopted to recruit respondents of this study.

After formulating the survey questionnaire, a Google form-based web link was created and shared through emails of academic professionals of Pakistani private and public universities. An ethical form was attached to the email that assured participants' confidentiality and anonymity. A total of 500 HEI professionals were initially contacted. The authors collected 190 questionnaires through a web-based online survey representing a response rate of 38%. To decide about the sample size, the most prescribed methodology in the PLS-SEM literature is power analyses (Hair et al., 2017). According to the literature, the sample size should be calculated using power analyses, depending on the constructs in the model (Hair et al., 2017). This was also in alignment with Cohen (1992) and other scholars, who have recommended the use of the statistical power analyses model for multiple regressions. The assurance of size depended on three factors, namely: (1) 80% of statistical power, (2) the least value of R-square, (3) the unpredictability of model path. So, the obtained number of respondents, i.e. 190, was far above the minimum required sample size of 103 for this study.

Measurements

The five items of GRS were adapted from the work of Yong and others (Yong and Mohd-Yusoff, 2016; Jabbour et al., 2010). The three items of GTD were adapted from Jabbour et al. (2010). TMCGW was measured with four item scale and adapted from Banerjee and others (Banerjee et al., 2003; Jabbour et al., 2010; Masri and Jaaron, 2017). The four items of sustainability were adapted from the work of Masri and Jaaron and others (Masri and Jaaron, 2017; Paulraj, 2011; Jabbour et al., 2010; Banerjee et al., 2003). These measures were ranked on a Likert scale from 1 = "Very Strongly Disagree" to 7 = "Very Strongly Agree".

Demographic profile of the sample

Table 1 above indicates that the sample of this study consisted of 65.8% male academic professionals within the young population of Pakistan. 47.9% of respondents were aged between 30 and 40. As for the educational level, 43.7% of respondents were having Doctor of Philosophy (PhD) degree, which can reflect the focus of HEIs on highly qualified academic professionals.

Pre-test and pilot test

The research instrument was further refined by using a pre-test and a pilot survey. Three academic experts examined the survey instrument for face validity, following minor modifications made to ensure clearness. The questionnaire was distributed to 38 respondents for the pilot survey and received 23 responses back, out of which 14 were male responders, and 9 were female responders. According to Nunnally (1978), the values of Cronbach's alpha of all scales were found to be more than 0.7, which is acceptable.

Table 1. Demographic characteristics

Demographic variable	Characteristic	Frequency	Percentage (%)
Gender	Male	125	65.8
	Female	65	34.2
Age	Below 30	38	20.0
	30 to 40	91	47.9
	40 to 50	45	23.7
	Above 50	16	8.4
Educational level	Intermediate	1	0.5
	Bachelor's	4	2.1
	Master's	39	20.5
	MS/MPhil	63	33.2
	PhD	83	43.7
Work experience	Less than 1	9	4.7
	1–3 years	32	16.8
	4–6 years	43	22.6
	7–10 years	44	23.2
	Above 10 years	62	32.6
Position level	Quality enhancement personnel	11	5.7
	HOD	15	7.9
	Professor	9	4.7
	Associate professor	12	6.3
	Assistant professor	68	35.8
	Senior lecturer	17	8.9
	Lecturer	41	21.6
Affiliation with the HEI	Other	17	8.9
	Public	109	57.4
	Private	81	42.6

Note(s): n 5 190

Results

The assessment model has tested the validity of the instruments used following the principles of **Hair et al. (2019)**. This study applied SmartPLS to evaluate the model. SmartPLS is a method used for assessing the path coefficients in casual models, and the software permits for concurrent testing of the hypotheses as it does not require an assumption of ordinariness and analyses consistently, not usually coursed (**Ringle et al., 2015**).

Measurement model fittest

As **Hair et al. (2017)** report, PLS-SEM literature employed the Composite reliability approach and Cronbach's alpha coefficients to extensively examine the constructs' reliabilities. The results in Table 2 show that all values exceeded the threshold of 0.5, which supports the findings of **Bagozzi and Yi (1988)** and **Hair et al. (2019)**. To consider the Cronbach's alpha as a valid statistic, one must give it a minimum value of 0.60 and a Cronbach's alpha value of 0.70 (**Bagozzi and Yi, 1988**). Our PLS-SEM estimations exceeded the thresholds; therefore, the research structures appear reliable. Additionally, the PLS-SEM offers composite reliability and average variance extracted (AVE) metrics, as they are included in the model (**Hair et al., 2012**). Composite reliability test results are all within the range that is acceptable (a threshold of 0.8). The least composite reliability coefficient for the study components is 0.8858, while the maximum is 0.9243. While convergent validity was presented by the AVE, which exceeded the minimal requirement of 0.5 (see **Table 2**).

Table 2. Construct reliability and validit

Construct	CR	AVE	(α)
GRS	0.924	0.709	0.897
GTD	0.886	0.722	0.807
TMCGW	0.918	0.738	0.880
Sustainability (S)	0.924	0.753	0.891

Note(s): Composite Reliability (CR), Average Variance Extracted (AVE), Cronbach's Alpha (α)

All items (indicator variables) loaded significantly to their associated latent constructs. According to **Bagozzi and Yi (1988)**, the optimal measurement of a latent variable under study is a loading that exceeds a threshold of 0.6. In actuality, these indicators measure as intended and have a load range of 0.758-0.902. Consequently, the findings are reported in Table 3 with their respective loadings (coefficients).

The Fornell-Larcker criterion's results reveal that the constructs satisfy both foundational and strict postulations, and hence, discriminant validity is substantiated. The Fornell-Larcker table (see **Table 4**) illustrates that the diagonal values, which are highlighted in italic, represent the measured constructs' AVEs, and hence must be greater than 0.5. AVEs should be greater for each concept at both row and column positions in order to prove discriminant validity (**Fornell and Larcker, 1981**).

Questionnaire design capacity is tested by Fornell Larcker's criterion of discriminant validity. It is measured by distinguishing data for the questionnaire's defined tenacity and its ability to be distinguishable from other questions with a concept in between (**Hair et al., 2010**). The following chart depicts the Fornell-Larcker criterion, which is used to evaluate discriminant validity. Fornell-Larcker's criteria results from the current study therefore reveal that each building has a higher value for its structure and a smaller value for the contagious building. The aggregate findings on validity and reliability are on the edge of acceptability.

Table 3. Measurement model for constructs

Construct	Indicator	Factor loading	Mean	SD	VIF
<i>Green Recruitment and Selection (GRS)</i>					
	GRS1	0.762	4.053	2.052	1.830
	GRS2	0.872	3.451	1.972	2.737
	GRS3	0.865	3.469	1.977	2.517
	GRS4	0.876	3.336	1.878	2.772
	GRS5	0.837	3.327	1.809	2.134
<i>GTD</i>					
	GTD1	0.787	3.787	2.032	1.532
	GTD2	0.874	4.185	2.024	1.963
	GTD3	0.882	3.938	1.960	1.979
<i>TMCGW</i>					
	TMCGW1	0.902	4.866	1.862	3.170
	TMCGW2	0.88	4.867	1.810	3.062
	TMCGW3	0.887	4.464	1.893	2.714
	TMCGW4	0.758	3.628	2.000	1.650
<i>Sustainability (S) (R² = 0.52)</i>					
	S1	0.842	4.464	1.729	2.077
	S2	0.882	4.678	1.740	2.569
	S3	0.857	4.517	1.718	2.316
	S4	0.888	4.642	1.675	2.688

Note(s): Mean (average of every item of the scale), SD (Standard Deviation), VIF (Variance Inflation Factor)

Table 4. Measurement model of discriminant validity -Fornell-Larcker's criterion

Construct	GRS	GTD	S	TMCGW
GRS	<i>0.842</i>			
GTD	0.603	<i>0.849</i>		
Sustainability (S)	0.542	0.612	<i>0.867</i>	
TMCGW	0.5927	0.708	0.691	<i>0.859</i>

Note(s): N 5 190. Squared correlations; AVE in the diagonal (in italic)

Table 5. Discriminant validity (HTMT criterion)

Construct	GRS	GTD	S	TMCGW
Green Recruitment and Selection (GRS)				
Green Training and Development (GTD)	0.703			
Sustainability (S)	0.599	0.718		
Top Management Commitment towards Greening Workforce (TMCGW)	0.666	0.837	0.780	

Structural model - hypothesis testing

Following **Hair et al. (2019)**, the way coefficients, standard mistakes, *t*-qualities, and *p*-values for the basic model utilizing a 5,000-example re-test bootstrapping system were accounted for (**Ramayah et al., 2018**). The results demonstrate (see **Table 6**) that GTD ($\beta = 0.650$ $p < 0.000$) has a significant positive relationship with TMCGW. However, GRS has an insignificant mediating relationship with Sustainability as depicted ($\beta = 0.068$; $p < 0.155$). Also, GRS ($\beta = 0.182$, $p < 0.067$) has an insignificant relationship with TMCGW. TMCGW ($\beta = 0.371$, $p < 0.004$) positively enhances Sustainability.

Table 6. Path coefficient and hypothesis model

Hypothesis	Effect	Coefficient (β)	Mean value	t-value	P-values (CI = 95%)	Empirical remarks
<i>Direct effect</i>						
H1	GRS → Sustainability	0.147	0.1419	1.9153	0.056	Rejected
H2	GTD → Sustainability	0.192	0.2011	2.1146	0.034	Supported
H3	TMCGW → sustainability	0.371	0.359	2.882	0.004	Supported
H4	GR → TMCGW	0.182	0.182	1.829	0.067	Rejected
H5	GTD → TMCGW	0.650	0.652	7.230	0.000	Supported
<i>Indirect effect (mediation analysis)</i>						
H6	GR → TMCGW → Sustainability	0.068	0.067	1.421	0.155	Rejected
H7	GTD → TMCGW → Sustainability	0.024	0.232	2.1146	0.004	Supported
<i>Moderation (interactive) effect</i>						
H8	Gender: GR → Sustainability	-0.260	-0.258	2.578	0.010	Supported
H9	Gender: GTD → Sustainability	0.126	0.133	0.874	0.382	Rejected

Note(s): β 5 regression coefficient and t 5 significant value ($t > 1.96$), Green Recruitment and Selection (GRS), Green Training and Development (GTD), Top Management Commitment towards Greening Workforce (TMCGW), Sustainability (R^2 5 0.543, Q^2 5 0.408), TMCGW (R^2 5 0.615, Q^2 5 0.458)

Mediation analysis

Mediation analysis reveals (see **Table 6**) that TMCGW plays a role of mediation between GTD and Sustainability ($\beta = 0.024$; $p < 0.004$).

Moderation analysis

Concerning moderation analysis, the result was rather interesting as out of two moderated hypotheses, only one was significant. Thus, the construct Gender as a moderating variable plays a significant moderation role between the interaction of GRS and Sustainability ($\beta = -0.260$, $p < 0.010$). This suggests that both male and female employees improve the economic, environmental and social performance (see **Table 6** and **Figure 1**).

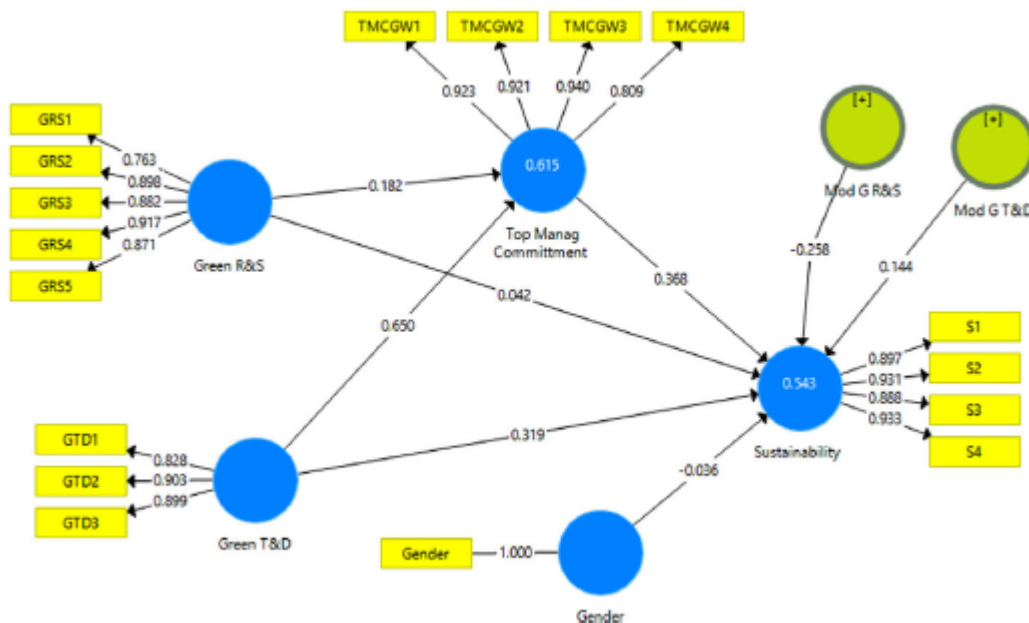


Figure 1. Structural equation modeling testing of how the GHRM practices predict sustainability

Discussion

This study examined the effects of GHRM practices on sustainability in the Pakistani higher education context. In particular, it explored the ways in which GTD (Green Training and Development - as an organizational intervention influenced) TMCGW (Top Management Commitment towards greening) which subsequently had a directly proportional relation to sustainability - a desired organizational output. This exploration has broken new ground by unpacking the black box of how GHRM practices influence sustainability, which is a neglected issue in the GHRM literature (**Paile et al., 2014; Zaid et al., 2018**). A new context, the emerging context of Pakistan, was also introduced. Last few years have witnessed a major surge of interest in GHRM practices with environmental performance and non-green outcomes (**Ismail et al., 2021; Paile et al., 2014; Shen et al., 2018**). However, few attempts have been made to explore the link between GHRM and sustainability (**Zaid et al., 2018; Paulraj, 2011**). Also, the focus towards sustainability is also increasing in other sectors such as tourism and hospitality is in lime light (**Javed and Tučková, 2020**). The empirical evidence derived from the full-time employees of HEIs supports the “win-win” hypothesis, which assumes that both institutions/employers and employees will eventually gain from the adoption of GHRM practices. Through the lens of resource - based view theory (**Wright et al., 2001**) the tested model highlighted the role of gender - a demographic construct, by examining its moderating role in linking GRS and organizational outcome i.e. sustainability. This finding clearly indicates the positive impact of GRS initiatives on sustainability thus addressing a major gap in addresses the gap in GHRM literature (**Shen et al., 2018**). Ultimately, the study findings broaden the HRM literature by providing further evidence that GHRM and in particular GTD is imperative for promoting sustainability in the HEIs of Pakistan. However, contrary to expectations, **H1** GRS was not supported with sustainability. In this vein, this result contradicts with the previous research (**Malik et al., 2020**). Additionally, the data revealed (**H2**) GTD positively related with sustainability. This finding is aligned with Gilal et al. (2019), they conducted research in HEIs of Pakistan, and they found GHRM practices can assist organizations with creating workers who are more likely to view nature as part of a wider ecosystem at the workplace. This study demonstrated **H3**, thus a direct effect of “top management commitment towards greening workforce” (TMCGW) is positively related to sustainability. Importantly, our finding is as significant as the result of studies conducted by **Yusliza et al. (2019)** and **Kramar (2014)**. However, the literature has largely ignored the role of top management commitment as to know the indirect effect on sustainability. This finding is consistent with the notion that top management commitment is crucial for the influence of individually thought processes to achieve a common goal as an organization (**Williams et al., 2014**). Gender plays a significant moderation role between the interaction of GRS and sustainability. Our result contradicts the gender being a moderator within the GHRM practices (**Chaudhary, 2020a**).

Theoretical implications

This study contributes to the current body of knowledge on GHRM in the higher education sector by making a few significant discoveries. Little empirical study has been devoted to the new phenomena of green HRM. First, this study was to employ RBV theory to provide greater theoretical rigor to the GHRM literature, which is still theoretically an underresearched area in the field of human resource management (**Paile et al., 2014; Yong et al., 2019**). This research builds on existing work in the field by examining intangible resources (employee abilities and skills) derived from RBV philosophy. RBV helps HR in implementing policies like environmental sustainability to assist the company’s comprehension (**Wright et al., 2001**). More crucially, RBV has acknowledged the growth of GHRM at work through a theoretical pillar (**Jabbour et al., 2010**). Second, Asia is the largest and most populous continent, and it is also in a constant struggle with environmental issues (**Ren et al., 2018**). To date,

there is scarce research on GHRM and sustainability in the Asia. By doing so, this research responds to the recent calls for further research to blend GHRM and sustainability in South Asia (**Hameed et al., 2020; Moktadir et al., 2020**). This study contributes to our understanding of GHRM in emerging economies and is thus an important addition to GHRM knowledge in the Asian setting. Third, this study applied the mediation model to ascertain the inter-linkage effect of top management commitment between the GHRM practices and sustainability, which responds to previous calls for research by scholars because field of HRM has not paid adequate attention (**Ren et al, 2018,2021**). In green HRM study, we usually find a direct association between green HRM and sustainability, but we generally leave out the mediating mechanism and do not examine it (**Zaid et al., 2018**). Fourth, the strategy has proposed exploring and getting to know the opinions of female and male employees on the adoption of green HRM practices towards sustainability (**Chaudhary, 2020b**). Regarding gender discrepancies, this study offers a moderation model. At the macro level, green HRM and sustainability efforts are more focused on institutional or organizational practices. In addition, the recent literature assessment of the GHRM demonstrates that most of the prior macro-level studies (**Yong et al. ,2019; Zaid et al., 2018**) did not cover the employee perspective in detail at the micro level of analysis (**Malik et al., 2020**). Our research examines how employees and their personal experience with greening and sustainability impacts the RM practices. By looking at GHRM practices, this study also widens the research about the HRM on a micro level (concept of individual level) and expands the literature base.

Practical implications

The findings of this study are particularly important for higher education policymakers and practitioners in the service sector. Firstly, by using GHRM practices, such as GRS, businesses may engage staff that have a strong green attitude and green work skills and assign them green duties to advance sustainability. Importantly, a new, improved approach to business sustainability requires the presence of environmental awareness and understanding when choosing new workers. Several companies have put effort into GHRM programs in order to be more sustainable, and policymakers may help them out by applying intangible resources. Practitioners of higher education can build a strategy that uses GHRM techniques to promote sustainable goals such as the responsible management of resources, environmental ecoefficiency and social performance of employees on the job. Secondly, our research shows that organizations should implement GTD practices to foster sustainable operations by growing green knowledge and skills. For example, waste management training and recycling practices should be promoted regularly at workplaces. Our study implies that trained employees work responsibly to take care of organizational resources and comply environmental rules and concerned about society. Thirdly, our results revealed a positive and significant role played by top management commitment in the successful adoption of GHRM practices for driving the organizations towards sustainability. A recent research suggested top management reflect sustainable practices in their mission and vision statements and cultivate a culture that promotes sustainability (**Ali et al., 2021**). Accordingly, the policymakers must prioritize the GHRM antecedents that can prove to be beneficial in formulating and implementing sustainability goals accurately and effectively. It is also likely to help managers improve work culture and employee well-being. Based on our results, it is recommended that senior management and policymakers pay more attention to the GHRM practices to achieve sustainability goals in HEIs. Fourth, gender has been shown to play a crucial impact in the adoption of GHRM practices, according to this study. This paper posits that female and male employees can help green their workplace by expressing their commitment to sustainability. In South Asia, which is similar to our subject region, GHRM practices are already in place. This study advocates that organizations should use a “win-win-win” strategy to meet sustainable

development goals (SDGs) in terms of “people, profits, and planet” because of their ability to play a more responsible role in profit maximization and in environmental and social performance.

Limitations and future recommendations

This study features few limitations. First, the population frame was higher education professionals, hence, the results of this study may not be generalized to other contexts. Second, the phenomenon of green human resource management (GHRM) is emerging where longitudinal study to measure ongoing dynamic perceptions would add more value to understand the phenomenon, however, the current study opted for the cross-sectional one. Third, the current study proposed the factors delineating sustainability, including “green recruitment and selection”, “green training and development”, “top management commitment towards greening workforce”, hence, future research studies can extend the existing model by including other human resource management practices such as performance appraisals and rewards management. To sum up, the focus of the current study was solely on the higher education sector of Pakistan as a developing country. The authors suggest doing future research to conduct a comparative study across different geographical zones. This will further deepen the validation of the proposed model.

Conclusion

In sum, an important finding of this study is that the GHRM practices significantly and positively predicted the sustainability within the higher education sector in Pakistan. Environmental sustainability is becoming a vital part of the organizational functions. This research confirms previous findings and contributes to our understanding that notion of GHRM promotes sustainability, which encourages firms’ organizational productivity in terms of corporate social responsibility. Sustainability and outcomes are essential in accomplishing a strong relation between GHRM and organizational performance. The current study also highlights that TMCGW can significantly enhance sustainable organizational behavior. In terms of contextual contribution, this study provides HEIs with a way to improve the sustainable position through the initiatives of GHRM practices. To conclude, the use of RBV as a theoretical underpinning to draw a link between the GHRM practices and the sustainability outcomes has enhanced our understanding of the emerging global wave of green mobility in the context of a developing country.

References

- Al-Zawahreh, A., Khasawneh, S. and Al-Jaradat, M. (2019), “Green management practices in higher education: the status of sustainable leadership”, *Tertiary Education and Management*, Vol. 25 No. 1, pp. 53-63.
- Ali, M., Puah, C.-H., Ali, A., Raza, S.A. and Ayob, N. (2021), “Green intellectual capital, green HRM and green social identity toward sustainable environment: a new integrated framework for Islamic banks”, *International Journal of Manpower*, in press. doi: [10.1108/IJM-04-2020-0185](https://doi.org/10.1108/IJM-04-2020-0185).
- Bagozzi, R.P. and Yi, Y. (1988), “On the evaluation of structural equation models”, *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94.

- Banerjee, S.B., Iyer, E.S. and Kashyap, R.K. (2003), "Corporate environmentalism: antecedents and influence of industry type", *Journal of Marketing*, Vol. 67 No. 2, pp. 106-122.
- Bombiak, E. and Marciniuk-Kluska, A. (2018), "Green human resource management as a tool for the sustainable development of enterprises: polish young company experience", *Sustainability*, Vol. 10 No. 6, pp. 17-39.
- Chang, M.-C. and Wu, C.-C. (2015), "The effect of message framing on pro-environmental behavior intentions: an information processing view", *British Food Journal*, Vol. 117 No. 1, pp. 339-357.
- Chaudhary, R. (2020a), "Green human resource management and employee green behavior: an empirical analysis", *Corporate Social Responsibility and Environmental Management*, Vol. 27 No. 2, pp. 630-641.
- Chaudhary (2020b), "Corporate social responsibility and employee performance: a study among Indian business executives", *International Journal of Human Resource Management*, Vol. 31 No. 21, pp. 2761-2784.
- Cohen, J. (1992), "Statistical power analysis", *Current Directions in Psychological Science*, Vol. 1 No. 3, pp. 98-101.
- Cronemberger de Araujo Goes, H. and Magrini, A. (2016), "Higher education institution sustainability assessment tools: considerations on their use in Brazil", *International Journal of Sustainability in Higher Education*, Vol. 17 No. 3, pp. 322-341, doi: 10.1108/IJSHE-09-2014-0132.
- Fawehinmi, O., Yusliza, M.Y., Mohamad, Z., Noor Faezah, J. and Muhammad, Z. (2020), "Assessing the green behaviour of academics: the role of green human resource management and environmental knowledge", *International Journal of Manpower*, Vol. 41 No. 7, pp. 879-900.
- Fernandez-Feijoo, B., Romero, S. and Ruiz-Blanco, S. (2014), "Women on boards: do they affect sustainability reporting?", *Corporate Social Responsibility and Environmental Management*, Vol. 21 No. 6, pp. 351-364.
- Findler, F., Schonherr, N., Lozano, R., Reider, D. and Martinuzzi, A. (2019), "The impacts of higher education institutions on sustainable development: a review and conceptualization", *International Journal of Sustainability in Higher Education*, Vol. 20 No. 1, pp. 23-38.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Foroutan, T., Timur, A.T. and Abubakar, A.M. (2018), "HR localization impacts on HCNs' work attitudes", *International Journal of Manpower*, Vol. 39 No. 7, pp. 913-928.
- Gilal, F.G., Ashraf, Z., Gilal, N.G., Gilal, R.G. and Channa, N.A. (2019), "Promoting environmental performance through green human resource management practices in higher education institutions: a moderated mediation model", *Corporate Social Responsibility and Environmental Management*, Vol. 26 No. 6, pp. 1579-1590.
- Gim, G.C.W., Ooi, S.K., Teoh, S.T., Lim, H.L. and Yeap, J.A.L. (2021), "Green human resource management, leader-member exchange, core self-evaluations and work engagement: the mediating role of human resource management performance attributions", *International Journal of Manpower*, in press. doi: 10.1108/IJM-05-2020-0255.

Greening, D.W. and Turban, D.B. (2000), "Corporate social performance as a competitive advantage in attracting a quality workforce", *Business and Society*, Vol. 39 No. 3, pp. 254-280.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate Data Analysis*, 7th ed., Pearson, Upper Saddle River, NJ.

Hair, J.F., Sarstedt, M., Pieper, T.M. and Ringle, C.M. (2012), "The use of partial least squares structural equation modeling in strategic management research: a review of past practices and recommendations for future applications", *Long Range Planning*, Vol. 45 Nos 5-6, pp. 320-340.

Hair, J.F., Hollingsworth, C.L., Randolph, A.B. and Chong, A.Y.L. (2017), "An updated and expanded assessment of PLS-SEM in information systems research", *Industrial Management and Data Systems*, Vol. 117 No. 3, pp. 442-458.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24.

Hameed, Z., Khan, I.U., Islam, T., Sheikh, Z. and Naeem, R.M. (2020), "Do green HRM practices influence employees' environmental performance?", *International Journal of Manpower*, Vol. 41 No. 7, pp. 1061-1079.

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.

Ismail, H., El Irani, M. and Kertechian, K.S. (2021), "Green HRM and nongreen outcomes: the mediating role of visionary leadership in Asia", *International Journal of Manpower*, Vol. ahead-of-print No. ahead-of-print, doi: **10.1108/IJM-04-2020-0162**.

Jabbour, C.J.C., Santos, F.C.A. and Nagano, M.S. (2008), "Environmental management system and human resource practices: is there a link between them in four Brazilian companies?", *Journal of Cleaner Production*, Vol. 16 No. 17, pp. 1922-1925.

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*, Vol. 21 No. 7, pp. 1049-1089.

Jackson, S.E. and Seo, J. (2010), "The greening of strategic HRM scholarship", *Organization Management Journal*, Vol. 7 No. 4, pp. 278-290.

Javed, M. and Tučkova, Z. (2020), "The role of government in tourism competitiveness and tourism area life cycle model", *Asia Pacific Journal of Tourism Research*, Vol. 25 No. 9, pp. 997-1011.

Kramar, R. (2014), "Beyond strategic human resource management: is sustainable human resource management the next approach?", *The International Journal of Human Resource Management*, Vol. 25 No. 8, pp. 1069-1089.

Malik, S.Y., Cao, Y., Mughal, Y.H., Kundi, G.M., Mughal, M.H. and Ramayah, T. (2020), "Pathways towards sustainability in organizations: empirical evidence on the role of green human resource management practices and green intellectual capital", *Sustainability*, Vol. 12 No. 8, p. 3228.

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*, Vol. 143 No. 9, pp. 474-489.

Mohamed, N.H., Noor, Z.Z. and Sing, C.L.I. (2020), "Environmental sustainability of universities: critical review of best initiatives and operational practices", in *Green Engineering for Campus Sustainability*, Springer, pp. 5-17, doi: 10.1007/978-981-13-7260-5_2.

Moktadir, M.A., Dwivedi, A., Ali, S.M., Paul, S.K., Kabir, G. and Madaan, J. (2020), "Antecedents for greening the workforce: implications for green human resource management", *International Journal of Manpower*, Vol. 41 No. 7, pp. 1135-1153.

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*, Vol. 243, 118595.

Naeem, M. and Neal, M. (2012), "Sustainability in business education in the Asia Pacific region: a snapshot of the situation", *International Journal of Sustainability in Higher Education*, Vol. 13 No. 1, pp. 60-71.

Natalia, P.A., Gabriel, R., Adrian, P.D. and Michaela, R.C. (2018), "Influence of adoption of the environmentally oriented social responsibility on the human resources and on the consumers from bakery companies", *International Multidisciplinary Scientific GeoConference: SGEM*, Vol. 18 No. 5.3, pp. 499-506.

Nunnally, J.C. (1978), *Psychometric Theory*, 2nd ed., McGraw-Hill, New York.

Paille, 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.

Paulraj, A. (2011), "Understanding the relationships between internal resources and capabilities, sustainable supply management and organizational sustainability", *Journal of Supply Chain Management*, Vol. 47 No. 1, pp. 19-37.

Pinzone, M., Guerci, M., Lettieri, E. and Huisingh, D. (2019), "Effects of 'green' training on proenvironmental behaviors and job satisfaction: evidence from the Italian healthcare sector", *Journal of Cleaner Production*, Vol. 226, pp. 221-232.

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 Guide and Practical Guide to Statistical Analysis*, Pearson, Kuala Lumpur.

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.

Rayner, J. and Morgan, D. (2018), "An empirical study of green workplace behaviours: ability, motivation and opportunity", *Asia Pacific Journal of Human Resources*, Vol. 56 No. 1, pp. 56-78.

Rehman, S.A.U., Cai, Y., Mirjat, N.H., Walasai, G.D. and Nafees, M. (2019), "Energy-environment-economy nexus in Pakistan: lessons from a PAK-TIMES model", *Energy Policy*, Vol. 126, pp. 200-211.

Ren, S., Tang, G. and Jackson, E.S. (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.

- Ren, S., Tang, G. and Jackson, S.E. (2021), "Effects of Green HRM and CEO ethical leadership on organizations' environmental performance", *International Journal of Manpower*, Vol. 42 No. 6, pp. 961-983.
- Renwick, D.W.S., 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.
- Renwick, D.W., Jabbour, C.J., Muller-Camen, M., Redman, T. and Wilkinson, A. (2016), "Contemporary developments in Green (environmental) HRM scholarship", *The International Journal of Human Resource Management*, Vol. 27 No. 2, pp. 114-128.
- Ringle, C., Da Silva, D. and Bido, D. (2015), "Structural equation modeling with the SmartPLS", in Bido, D., da Silva, D. and Ringle, C. (2014). *Structural Equation Modeling with the Smartpls*, *Brazilian Journal of Marketing*, Vol. 13 No. 2.
- 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 and Organization Management*, Vol. 43 No. 4, pp. 594-622.
- Singh, S.K., Gupta, S., Busso, D. and Kamboj, S. (2021), "Top management knowledge value, knowledge sharing practices, open innovation and organizational performance", *Journal of Business Research*, Vol. 128, pp. 788-798.
- Siyambalapitiya, J., Zhang, X. and Liu, X. (2018), "Green human resource management: a proposed model in the context of Sri Lanka's tourism industry", *Journal of Cleaner Production*, Vol. 201, pp. 542-555.
- Spencer, S.Y., Adams, C. and Yapa, P.W. (2013), "The mediating effects of the adoption of an environmental information system on top management's commitment and environmental performance", *Sustainability Accounting, Management and Policy Journal*, Vol. 4 No. 1, pp. 75-102.
- Wernerfelt, B. (1984), "A resource-based view of the firm", *Strategic Management Journal*, Vol. 5 No. 2, pp. 171-180.
- Williams, R.I. Jr, Morrell, D.L. and Mullane, J.V. (2014), "Reinvigorating the mission statement through top management commitment", *Management Decision*, Vol. 52 No. 3, pp. 446-459.
- Wirtenberg, J., Harmon, J., Russell, W.G. and Fairfield, K.D. (2007), "HR's role in building a sustainable enterprise: insights from some of the world's best companies", *People and Strategy*, Vol. 30 No. 1, pp. 10-20.
- Wong, T.K. and Wan, P. (2011), "Perceptions and determinants of environmental concerns: the case of Hong Kong and its implications for sustainable development", *Sustainable Development*, Vol. 19 No. 4, pp. 235-249.
- Wright, P.M., Dunford, B.B. and Snell, S.A. (2001), "Human resources and the resource based view of the firm", *Journal of Management*, Vol. 27 No. 6, pp. 701-721.
- Yong, J.Y. and Mohd-Yusoff, Y. (2016), "Studying the influence of strategic human resource competencies on the adoption of green human resource management practices", *Industrial and Commercial Training*, Vol. 48 No. 8, pp. 416-422.

Yong, J.Y., Yusliza, M.Y., Ramayah, T. and Fawehinmi, O. (2019), "Nexus between green intellectual capital and green human resource management", *Journal of Cleaner Production*, Vol. 215, pp. 364-374.

Yusliza, M.Y., Norazmi, N.A., Jabbour, C.J.C., Fernando, Y., Fawehinmi, O. and Seles, B.M.R.P. (2019), "Top management commitment, corporate social responsibility and green human resource management: a Malaysian study", *Benchmarking: An International Journal*, Vol. 26 No. 6, pp. 2051-2078.

Zahid, M., Ur Rahman, H., Ali, W., Habib, M.N. and Shad, F. (2020), "Integration, implementation and reporting outlooks of sustainability in higher education institutions (HEIs): index and case base validation", *International Journal of Sustainability in Higher Education*, Vol. 22 No. 1, pp. 120-137.

Zaid, A.A., Jaaron, A.A.M. and Bon, A.T. (2018), "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.

Appendix

Table A1. Questionnaire items

<i>GRS</i> (Yong and Mohd-Yusoff, 2016; Jabbour <i>et al.</i> , 2010)	
GRS1	Job description includes environmental concerns
GRS2	My organization prefers to hire employees who have environmental knowledge
GRS3	Employee selection takes environmental motivation into account
GRS4	My organization selects applicants who are sufficiently aware of greening to fill job vacancies
GRS5	Job positions are designed that focus exclusively on environmental management aspects
<i>GTD</i> (Jabbour <i>et al.</i> , 2010)	
GTD1	All training materials are available online for employees to reduce paper cost
GTD2	Providing training to learn or adapt environmentally friendly best practices are encouraged
GTD3	My organization trains employees on environmental awareness
<i>TMCGW</i> (Banerjee <i>et al.</i> , 2003; Jabbour <i>et al.</i> , 2010; Masri and Jaaron, 2017)	
TMCGW 1	The top management is committed to protecting nature
TMCGW 2	The top management actively support the environmental friendly initiatives
TMCGW 3	Top management clarifies information and values of environmental management
TMCGW 4	Top management established penalties for noncompliance in the environmental management
<i>Sustainability (S)</i> (Masri and Jaaron, 2017; Paulraj, 2011; Jabbour <i>et al.</i> , 2010; Banerjee <i>et al.</i> , 2003)	
S1	Improved overall stakeholder welfare
S2	Improvement in community health and safety
S3	Reduction in environmental impacts and risks to the general public
S4	Improved occupational health and safety of employees
