

Impact of moderating role of green cultures over green environmental effects.

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Abstract:

The study examined the impact of green practices of human resources, empowered interaction capability and green innovation behavior over green environmental effects by moderating effects of green cultures. The research took chemical industry as population, and obtained 220 respondents working in chemical industry of Karachi city as sample. SPSS was used for statistical analysis and PLS4.0 was employed for SEM modeling. Therefore, the results revealed that there is a positive relationship between green practices of human resources, empowered interaction capability and green innovation behaviors of the human resources over green environmental effects by moderating effects of green cultures. This study aimed to provide theoretical and practical implications and insightfulness that how to promote green practices to ensure green environmental effects.

Keywords: green human resources, empowered interaction capability, green innovation behavior, green culture as moderator, green environmental effects and Ability Motivation and Opportunity (AMO) theory.

1. Introduction

Worldwide environmental performances are solely dependent upon the perceived actions and interactions of the employees and organizations as whole (Durnali et al., 2023). Therefore, the organizations are supposed to perform beyond their primary roles and responsibilities. Hence, the organizations need to apply green policies and procedures and apply their predefined directions and guidelines for the green environmental effects (Atkinson et al., 2000). The organizations are also required to have actions in accordance to the environmental effects by exceeding their routine operationalization. However, environmental effects need to make possible by altering organizational operations green and effective in terms of environmental effects. Moreover, their relevant products and services are aligned in a sophisticated and c way as the green environment can be made effective (Ahmed et al., 2023). Whereas, the green performance of the human resources is solely dependent on the environmental friendly products and

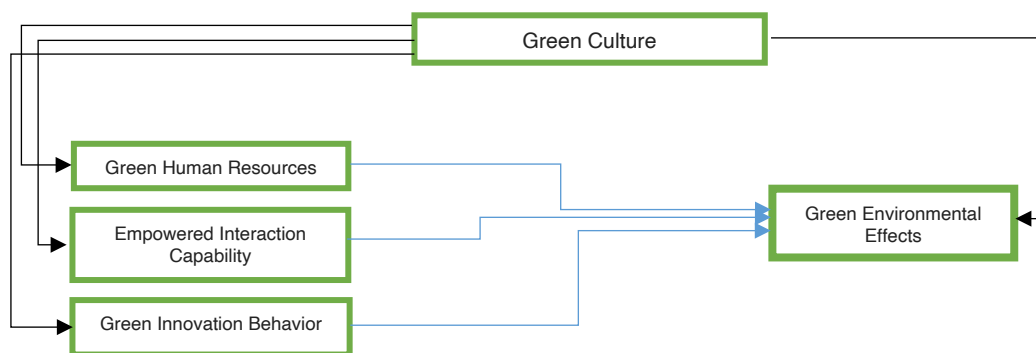
services. The organizations therefore develop their performances depending on their predefined standards regarding green environment. Additionally, the environmental awareness is integrated with the ecological and eco-friendly policies and procedures of the organization (Dost et al., 2019). Therefore, the organizations need to be compliant with the green corporate operations and their developments. However, green innovations are solely linked with the managerial plans and strategies for improving green environmental effects (Umrani et al., 2022). Whereas, the green practices of human resources mitigate the negative perception of the organization regarding environmental effects. However, green environmental effects have a social and financial impact, and improves ecological performance.

On the other hand, the running industries and plying transportations are emitting tons of carbo di oxide and greenhouse gases in the air on daily basis (Konan & Chan 2010; Pegoue 2023) resultantly, the global warming is increasing day by day. Alongside this, the sea level in rising unevenly and its surface is becoming warm, resultantly, the natural disasters are increasing in shape of dust storms and heavy rainfalls (Pramanik et al., 2016; Subramanian et al., 2023). Furthermore, the issues like global warming, extensive rainfall, dry-weather and flash-floods are increasing which are of utmost importance that to be taken care of, especially in Pakistan (Ahmed et al., 2020). Whereas, such day to day developing environment is endangering the life of species subsequent the extinctions of the animals residing in the forest and in waters as well. therefore, such deforestation and warm weathers enforces all the stakeholders that they must put their efforts to preserve the worsening climate as to ensure healthy environment and societies (Konan & Chan 2010). So that the organizations will have also to be innovative in terms of green productivity and serviceability and need to maintain effective controls over their human resources (Kerzner 2017; Pahi et al., 2021). In that context, the running organizations need to use lesser air-conditions, lesser usage of electricity and also to ensure lesser usage of paper-works, likewise. Because, cheaper the quality higher the carbon amount in the air, and higher the carbon emission amount in the air means worst the climate effects. Such awareness must be made public and emphasis the enterprises to reduce the carbon emission at some extent. Therefore, the organizations will have to ensure green practices as to lead the enterprises for green sustainable profitability (Bombiak & Marciniuk-Kluska 2018). Consequently, the green managers are supposed to train and develop green practices and green behaviors among the employees (Pahi et al., 2022). The HR need to improvise its working environment and performance styles. The human resources therefore need to be encouraged by the HR managers in accordance with their green ideas and green cultures and green promotions. The HR managers need to make themselves ready to have discussion with the human resources regarding their readiness about adopting the green practices. Consequently, the human resources are made ready to accept the challenges regarding ecological and environmental effectiveness (Malik et al., 2020; Bombiak & Marciniuk-Kluska 2018). Therefore, the green HRM is supposed to create green psychological habits in human resources as to promote green behaviors among them.

Theory of Ability, Motivation and Opportunities (AMO) have some cognitive values. This theory is also helpful to form procedures and policies in accordance with the behaviors and performances of human resources (Giampietri et al., 2018; Perugini & Bagozzi 2001). Therefore, the industries need to decrease the extensive amount of carbon di oxide and greenhouse gas-emissions. In this regard, all the stockholders will have to contribute in stopping such catastrophist environmental polluters. In the connection the HR practices need to be altered in green practices, organizations will have to set their goals in accordance with the green policies and factories will have to emit less fume, as the air maybe made intact and the pollution level may be decreased at remarkable level. In this connection the organizations will have to train their skilled human resources for the best outputs in context to green environmental effects. Hence, the green HR managers will have to play their vital role by training the human resources to have green environmental

effects (Pahi et al., 2023). Therefore, the human resources need to have green knowledge that how to operate the man and machinery within the organizations for green productivity and serviceability. The human resources are made aware from the ongoing and upcoming climate threats and they must train that how to reduce catastrophic elements which are harmful for the environment. Moreover, the organizations, HR managers and human resources should know very well that how environmental changes alter the life of a common man on this globe. Consequently, the organizations need to innovate quality products and render green services by decreasing carbon emissions and escalating amount of green house gases (Nußholz et al., 2019). The human resources are also supposed to have better opportunity to avail green practices for the green sustainability. In this study all the green performance factors of human resources, empowered interaction capabilities and green innovation behaviors are made effective for the green environmental effectiveness. Furthermore, green culture has been elaborated in line with the moderation effects as the practices of the human resources can be elaborated in connection to green environmental effects.

1.2. Conceptual framework:



1.3. Research Objectives

- To determine that how the green human resource practices impact green environmental effects with the moderating effects of green cultures.
- To determine how the empowered interaction capability have impacts over green environmental effects with the moderating effects of green cultures.
- To determine that how the green innovation behaviors impacts green environmental effects with the moderating effects of green cultures.

2. Literature Review

2.1. Green environmental effects

Human beings surviving on the globe has affected the environment in many ways (Umrani et al., 2022). Thus the reasons of the pollution can be many more as: over-population, extensive piles of garbage, emission of greenhouse gases and carbon di oxide (Barbier 2011). Resultantly, polluting the air and contaminating and poisoning the drinking water by draining toxics and acids from the various industries. The human beings have also been affecting the environment by burning fossil fuels and deforestation, which has harmed the green environment, at large (Bongaarts 2023). Such practices have also triggered worst

threats and environmental terrorizations in terms of soil erosion and poor air quality which harms the healthy environment (Chowdhary et al., 2020; Smith et al., 2013). So due to worst climate changes, the living creatures on the globe are being affected in terms of their life styles. Therefore, the air is being polluted speedily at large scale causing the plenty of rainfalls and cyclones which trigger dry weather conditions and dust storms etc. therefore, such worst climate change has made the life difficult for the common man on this globe. This is also fact that everyone has carbon-footprints on ozone. So everyone is contributing the current carbon emission and everyone is worsening the climate and has deteriorated the ecological conditions at its worst (Chambers et al., 2014; Ramzan et al., 2023). Therefore, the living creatures are encountering enormous challenges and changes in their routine lives. Even, some of them are facing dangers and life-threats and will be extinct and defunct in near future, at some extent. Hence, everyone need to be guided to have green practices, and should focus on and must reduce the elements affecting the green environment. Therefore, globally the organizations must reconcile the policies and procedures as the green environmental effects can be ensured (Barbier 2011). The organizations should adopt the green policies and processes which may benefit and promote the green environment. The organizations must have potentiality to contribute by forming and adopting new policies in routine operationalization for the sake of the green environmental effects. hence, emission of carbon dioxide in the air is immensely escalating with the time (Ahuja et al., 2023). Likewise, the world is observing big threats in context of climate change, therefore the organizations need to promote green operationalization. The organizations must realize the fact that the speedy and bulk production has rendered the worst effects on the environment (Roberts 2007; Gazmararian & Tingley 2023). That's why the environment encounters short and long term consequences i.e. public health issues, epidemics, escalating poor quality of life and moreover deforestation and global warming as well. Hence, the mass emission of carbon dioxide generated from the huge operations of various industries should be decreased, gradually. Furthermore, the maintenances of big infrastructures must be made possible as the carbon dioxide emission can be reduced at some extent. Although, the technological firms and the transportations plying on the roads emit a big amount of fume contributing a big part in warm weather and other consequences (Luthra 2023). Such worst practices also generate noise, air pollution issues, affecting human health and increasing cost of healthcare issues (D'Amato et al., 2015; Zhang et al., 2023). It also causes decay in local infrastructures which incur heavy financial cost as well. The pollution also aids acids and harmful gases in rainfalls which conversely containing the drinkable waters. Whereas, by burning hydrocarbons, coal for generating electricity and furnace oil to other energy sources for generating electricity firms also adding carbon dioxide in the air (Jaccard 2006; Anufriev 2021). However, on the same pace, they are producing high volume of fume in the air and polluting the air at high rate. Alongside this, the carbon emission and other environmental polluting activities also harm the environment at large i.e. improper waste disposal, regular spills of chemicals in the drainage systems and increasing air population etc. Therefore, the organizations need to ponder over the green environmental effectiveness. The organizations must figure out how to implement tangible and intangible green aspects to improve green environmental effects. Therefore, this study has taken the variables to ensure green practices of human resources, empowered interactive capabilities and green innovation behaviors as the green environmental effects can be implemented for better environment and for better and green society as well.

H1: Therefore, green environmental effects are correlated with the green human resources, empowered interaction capability and green innovation behavior of the employees.

2.2. Green human resources

Green human resources are the performers responsible for the green practices within the organization (Ahmad 2015; Dost et al., 2019; Shah & Soomro 2023). Further, the human resources practices are a set of policies and procedures for ensuring the green performances. The human resources are also supposed to learn green practices and put them into routine practices as the green results may be observed (Guerci & Carollo 2016). The green practices are inclusive of the green thinking, green knowledge, green capabilities and green cognitive values of the human resources. The green performers pose and impose their working traits and green performance for the green environmental effects. They also demonstrate their skills to prove that how they have been imparted the requisite trainings for the green implementation and effectiveness (Alyahya et al., 2023). In general perspective, the human resources are trained and treated that they should adopt best green environmental policies and practices (Armstrong 2006). They are also taught that their green performance is solely linked with the green impacts which either improves the environment or harm it, eventually. Therefore, the human resources are well aware about the consequences of the environmental dangers and green environmental effects, likewise (Daily & Huang 2001). The environmental performance is considered when the human resources perform their operations at the best to protect the environment (Umrani et al., 2022). The human resources must exhibit their performance into their day to day operations in accordance to the green environmental policies. Therefore, the best human resources set their performance in a recycle way and perform it on repeated mode. Likewise, the best green performers also enumerate and evaluate their bad performance incidents on daily basis in terms of environmental perspective (Berardi et al., 2014; Jiang et al., 2023). The human resources therefore need to ensure the consistency in their performance. They are supposed to reduce wastage and garbage being amassed within the organization, unnecessarily. The human resources are also bound to constantly inform other colleagues and stakeholders and remind them of their core responsibility in relation to green environment (Ishaq et al., 2023). Therefore, the green practicing human resources decently should examine their routine working in terms of green environment. They set their standards that how the resources devalued which are harmful for the green effects. The human resources are also aware about the level the consumption of the resources. Even though the human resources are also known and habitual to cut down the constant usage of the resources which are harmful for the environment (Chelladurai & Kim 2022). The human resources are also bound with the cost effectiveness and therefore they perform cost accumulation practices that may gain profitability for the organization. Therefore, the HRM managers may obtain organizational goals by constantly recruiting the green practicing human resources. HRM managers also need to impart timely trainings to the human resources to perform better for the green environment and organization at all (Debrah & Ofori 2006; Ghosh et al., 2023). This will also promote more consciousness regarding environmental practicality and activities. However, the human resources be offered incentives in context to promoting and practicing green environmental effects within the organization (Roscoe et al., 2019). The HR managers are also supposed to reward those human resources who are goal achievers and conscious in terms of environmental friendly practices. Therefore, the human resources have positive relationship with the green environmental effects.

H2: Green human resource practices positively impact green environmental effects.

2.3. Empowered Interaction Capability

Indeed, mutual understanding of the human resources with the organization's is of utmost importance, further align themselves with the organizational goals matters (Freeman & McVea 2005). Therefore, empowered integration capability determines the sustainability and success of the organization, it also ensures enduring bond of the organization with the human resources. The organization also ensures that the

human resources are fully bound with the organizational sustainable goals at large (Atmaja et al., 2023). Therefore, fully committed human resources emphasis on their performance and put their potentiality for the better output. Furthermore, sustainable outputs can be attained by the interaction between the human resources and the organization. whereas, the interactions are of many kinds i.e. individual and personal interactions, relational interactions, ethical interactions, empowered interactions, gradually developmental interactions, influential group interactions, empowered interactions and rigorous interactions etc. (Finlay 2022; Silhánová et al., 2011). Each of them are meaningful in terms of mutual interaction and integration, understanding and rigorous capabilities. Further, each of the them have some certain capabilities which are beneficial from the service dominant-perspective. Therefore, empowered interaction capabilities have some traits and effectiveness to motivate human resources (Choi et al., 2016). It helps the leaders to comprehend the complex issues and to appreciate the cognitive values of the human resources and utilize them for organizational goals (Salas et al., 2015). It assists the leaders to gain more knowledge about the human resources as to utilize intellectual capabilities of individual human resources. Empowered interaction also helps the leaders to gain more acquaintance with the human resources as they may utilize their performance in a better way (Kang & Stewart 2007). It also prepares the individual to become profiting and actualize their value creation knowledge for organizational growth. The empowered interaction capability develops the norms and values of the individuals, it enhances knowledge of human resources and their professional experience. The empowered interaction capabilities also enhance team capabilities and knowledge sharing habits as the innovation and productivity can be safeguarded. It also encourages and improves competitive advantage as the organizational growth may be enhanced. Therefore, it is resulted that the empowered interaction capability has positive relationship with the green environmental effects.

H3: Empowered interaction capability has positive relationship with environmental effects.

2.4. Green innovation behavior

Green innovation behaviors incorporate some exceptional capabilities which alters and effects the surrounding environment (Khan & Liu 2023). Green innovative practices and policies are correlated and dependent on the interactions and actions of humans resources. Hence, the green innovation behaviors are environmental focused system which ultimately affects the environmental changes. Green innovative behaviors are the systems which entail some certain practices of human resources imparted by the leaders in terms of new productivity (Ogbeibu et al., 2020). Such procedures and policies increase knowledge and awareness of the human resources which enhance their motivation and skills for sustainable and green environmental effects. It includes individual behaviors, routine workability and green performance. It also includes manufacturing new products in context to green environment, it entails certain set of green products and services inclined towards green practices (Srivastava 2007). It also entails some innovative ideas generated for the products and services and their promotional activities, as well (Bist 2023). Therefore, green innovative performance of the human resources can better be utilized in a sense as the green productivity and green serviceability can be ensured. Therefore, green innovative behavior has two distinguished characteristics, one is proactive and another is reactive (Huang & Xiao 2023; Chen et al., 2012). Whereas, in proactive context, the human resources demonstrate their readiness to adopt ground-breaking ideas while manufacturing the products and rendering services. However, the leadership motivate them as the organizational goals may be aligned in that context. Even though, the human resources are made capable to adopt green ideas while rendering services and catering the required needs. (Nickson 2013; Branicki et al., 2022). In context to reactive practices, the human resources are motivated to furnish their innovative ideas and later make them better for better results. Whereas, the proactive practices motivate the

human resources to innovate the products in accordance with the needs and requirements of the green environment (Tseng et al., 2013; Dost et al., 2019; Awan et al., 2023). Therefore, the human resources focus on their capabilities to produce new environmental friendly products and services. The innovative ideas are practiced whenever the human resources are recruited and trained in line with the innovative and novel ideas. Hence, the human resources are recruited and selected by keeping in mind the green perception and innovation which may benefit the green environment at large (Ahmed et al., 2023). Additionally, the training and development programs are imparted to enhance workability of the human resources and to ensure green innovative behaviors. The human resources are made more innovative as they may perform environmentally green (Cronin et al., 2011). The green innovative behaviors of the human resources assist them to practice green values. Furthermore, the trainings enable them to implement green policies and green procedures. However, being motivated the human resources have some certain subjective norms, what they promote and carry out in terms of innovations. The human resources therefore demonstrate high consciousness and core responsibility when they perform in accordance with the innovations (Ahmad 2015; Asiaei et al., 2023). The human resources are also supposed to promote such awareness among their circles and also motivate their stakeholders (Armstrong & Taylor 2023; Ahmed et al., 2023). Additionally, they are supposed to motivate their co-employees by their actions and interactions. So the green environmental effectiveness creates some competitive environment and promote green surroundings within the organization (Dost et al., 2019). Therefore, the high green performers are compensated well in time, as they may enable themselves for better green practices and comply the policies with true letter and spirit. The organization also consider them for high pay scales, rewards and better rewards. Hence, the high paid human resources are motivated to implement green practices for green environmental effectiveness.

H4: Therefore, the green innovation behaviors of the employees have positive relationship with the green environmental effectiveness.

2.5. Moderating effects of green cultures

Green cultures in context to moderating effects provide some certain facilities and constitutes environmentally friendly grounds for green performances and green effectiveness (Nureen et al., 2023). Green culture however emphasis the human resources management team to teach and train the human resources. Furthermore, HRM is supposed to promote the already pinned and prevailed cultures for better output in terms of green environmental effectiveness (Mercur 2023). However, apart from indirect effects the green culture has some certain positive effects on the performance of human resource. Moreover, green culture also influences psychological working capabilities of the human resources in terms of green practices (Dumont et al., 2017; Renwick et al., 2013). Therefore, the green cultures moderate performances of human resources within the organization to adopt green environmental practices. Whereas, pro-green cultures also motivate the human resources to have all the pro-environmental idea-implementation for the green environments. Therefore, all the human resources are skilled with green knowledge and practicability in accordance to the green cultures. The human resources also empowered with interaction capabilities and green innovation behaviors to fully concentrate on pro-green knowledge and green cultures. Therefore, the human resources are made self-motivated to perform green. Furthermore, the organizations must be in practices to have green policies and prevail the green practices. Additionally, ability, motivation and opportunity theory have some certain motivational powers to track down the human resources to have green practices as to have green environmental effects. Whenever, the green cultures within the organizations are strong the green practices are made stronger and effective, likewise. Apparently, the internal green cultures are followed properly by the human resources, same way the organizational policies also enforce them to

implement for the green environmental effects (Leonidou et al., 2015). Therefore, the green cultures moderate for the consistency of the procedures and practices. Likewise, the already prevailed green cultures compel the human resources to have enthusiasm to perform in accordance with the green goals of the organization (Joy-Matthews et al., 2004; Khan et al., 2023). The green cultures already in practice also emphasize the human resources and HR managers to comply with the policies and practices to have consistent green policy. Furthermore, the human resources are strictly made compliant to follow the norms and values of the organization in terms of green environmental effects. The green cultures therefore engage the human resources for the green environmental effects (Tabrizi et al., 2023; Singh et al., 2020; Umrani et al., 2022). In this regard theory of Ability Motivation and Opportunities also supports this idea that the behavior and pre-plans for the performing jobs plays a vital role. It further ensures the empowered interaction capabilities of the human resources to align them in accordance with green environmental effects, the green culture also moderates the effects for green innovation behaviors of the human resources (Pham et al., 2019; Harris & Crane 2002; Khan et al., 2023). Therefore, it is resulted that the green cultures moderate and facilitates the human resources, empowered interaction capability and green innovation capability for the green environmental effectiveness.

Theoretical underpinning

2.2.1. Ability Motivation & Opportunity (AMO) Theory

This theory was originated from the constant dialogue between the managerial psychologist. Hence, they realized that the HR functions has the real ability to have motivation and can create opportunities for the human resources (MacInnis & Jaworski 1989). This theory is also rooted in HR functions, it further claimed that the ability, motivation and opportunity are the core functions of the performances. later on, this idea was enriched by Blumberg and Pringle (1982) by adding opportunity elements and the performances i.e. work conditions, modern tools, available material, internal and external work environments and forces etc. Thus, in light of the arguments ensued by the authors, the performance is a result of the capacities and the capabilities. Furthermore, the willingness is a type of motivation and level of satisfaction and opportunity to avail tools and technics to perform the assigned task, accordingly. Therefore, the ability motivation opportunity (AMO) theory is an essential motivational theory in context to human resource management practices and performances (Albrecht et al., 2015). Its characteristic emphasis over the actions and reactions of human resources and their effectiveness at organizational level. According to its general conception, the performance of the human resources, their capabilities, motivational level and opportunities contribute to organizational growth. Hence, organization provides appropriate opportunities of training and development to their human resources for their personal and professional goals (Ahmed et al., 2023). This theory also signifies the capabilities and motivational level of the individual human resources. Moreover, this theory also elaborates individual performance and competencies as to make them valuable. This theory integrates individual and managerial performances for better contribution at organizational level. Therefore, the strategies of top level matter, that how they assimilate the performance of both the tiers i.e. human resources and managerial level (Mouritsen et al., 2022). The top management hence endorses the performance and coordination level of the both the layers as the strategies may be implemented well in time. Additionally, from the motivational perspective, creative ideas are circulated and promoted for better performance and sustainable profitability. The creative human resources therefore are awarded and rewarded for the better output. Furthermore, the organization also endorses their workability for their motivation and for sustainable competitiveness (Vongswasdi et al., 2023). Ability motivation and opportunity (AMO) theory therefore modifies the idea for the green behaviors of human resources and their green practices. Therefore,

HR must integrate the actions and reactions of the individual human resources in line with managerial policies as the green environmental practices may be made concrete (Pham et al., 2023; Ahmad 2015). The pro-environmental green polices are not merely designed for the consumers and the relevant products but for sustainable growth and green profitability of the organization as well (Moser 2015; Elshaer et al., 2023). However, this theoretical approach is well applied by the operationalization for green performances of the human resources (Khan & Liu 2023). This is also workable for rendering green services, as employees may inline their day to day tasks to have green environmental effects (Badar et al., 2023; Bozkurt & Stowell 2016). Such green performance is based on the capabilities and motivational level of the human resources, further to have them opportunities to be effective for the green environment (Jia et al., 2018; Dangelico 2015).

3. Methodology

This study adopted quantitative research methodology, it also adapted a questionnaire to measure the responses sample size (Rahi 2017; Hyde 2000). The plastic industry of Karachi City was selected as population. Further 220 employees were selected as suitable sample. Non probability sampling was utilized and further convenience sampling was employed to distribute the questionnaire. However, the researcher preferred both the modes for the distribution and data collection, one was face to face partial meeting with the respondents as to make the five likert scale questionnaire easier from distributing by identifying perspective (Glasow 2005). Whereas, the questionnaires needed to be collected within 20 days of time. The second one was to distribute the questionnaire by emailing and google questionnaire as to collect the data easily. Later the same filled questionnaires were collected by returning email, received by hand and by social media. Precisely, the respondents returned the same filled questionnaire well in time. Out of 220 questionnaires only 178 were useable for data running. So the returning and acceptance rate of the questionnaire was 80% as endorsed by Ringle et al., (2005). Moreover, the data was reliable as the all the respondents was from the single industry and homogenous in nature i.e. involved in production, supply chain management and technical workers within the plastic industry who participated in the research work and made it possible to have timely responses.

Table 1 Demographic

Gender	Frequency	Percent
Male	119	66%
Female	61	34%
Age	180	100%
20-30	58	32%
30-40	91	51%
30-50	22	12%
50-60	9	5%
Qualification	180	100%
Intermediate	80	44%
Graduates	45	25%
Masters	55	31%
Status	180	100%
Single	106	59%
Married	74	41%
Services	180	100%

1-year	70	39%
1-5 years	76	42%
05-10 years	21	12%
10-15 years	9	5%
Above -15 years	4	2%
Total	180	100%

3.1. Measurement Model

A measurement model was utilized for ensuring the validity and reliability as per the suggestion of Hair (2009). However, the initial goal of the study was to predict the relationship between the latent variables. Therefore, internal reliability of outer loading was measured as to ensure the reliability of the model *as shown in the appended figure 1:*

Measurement Model (Figure 1)

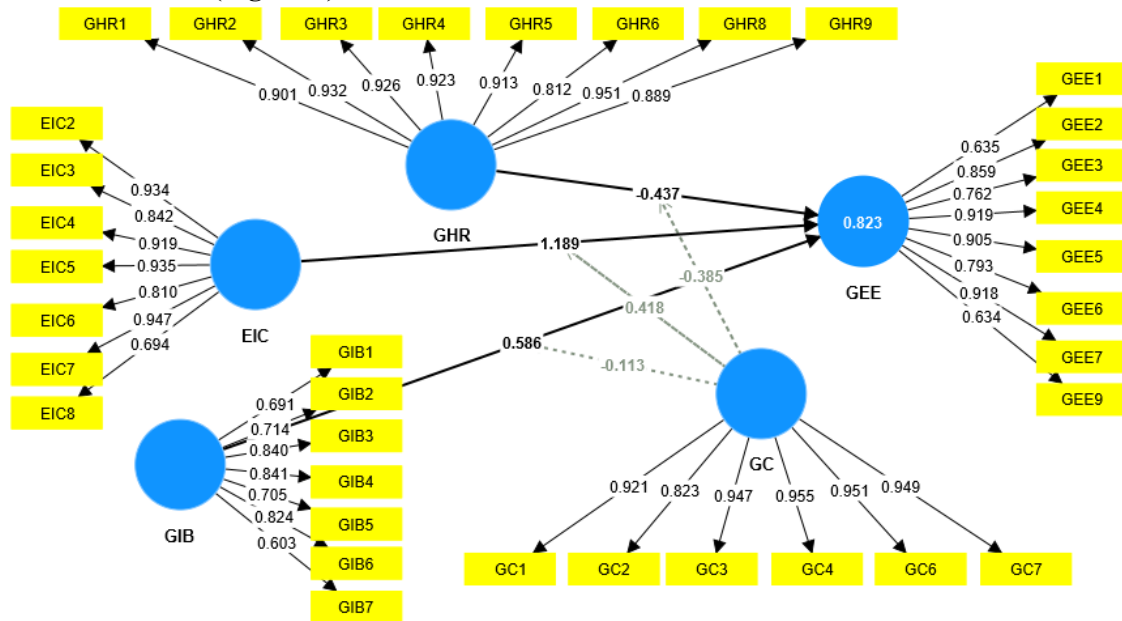


Table 2

Outer loadings Matrix					
Items	loading	AVE	CR	R-square	Cronbach's alpha
EIC2	0.934	0.762	0.950	0.823	0.946
EIC3	0.842				
EIC4	0.919				
EIC5	0.935				
EIC6	0.81				
EIC7	0.947				
EIC8	0.694				
GC1	0.921				
GC2	0.823				
GC3	0.947				
GC4	0.955				
GC6	0.951				
GC7	0.949				
GEE1	0.635	0.657	0.931	0.922	
GEE2	0.859				
GEE3	0.762				
GEE4	0.919				
GEE5	0.905				

GEE6	0.793			
GEE7	0.918			
GEE9	0.634			
GHR1	0.901	0.822	0.971	0.969
GHR2	0.932			
GHR3	0.926			
GHR4	0.923			
GHR5	0.913			
GHR6	0.812			
GHR8	0.951			
GHR9	0.889			
GIB1	0.691	0.563	0.869	0.867
GIB2	0.714			
GIB3	0.84			
GIB4	0.841			
GIB5	0.705			
GIB6	0.824			
GIB7	0.603			
GC x GHR	1.000			
GC x EIC	1			
GC x GIB	1.000			

The data as given in the tabulated form shows standard loadings, average variance extract (AVE), composite reliability (CR²) and R² scores. Whereas, the loadings should be less than 0.3 and not be more than 0.9 as the reliability of the latent can be verified as discussed by Hair et al., (2014). However, the CR (Composite Reliability) should be more than or up to 0.7 as the measurement model can be verified.

3.2. Discriminant Validity

Discriminant validity test is taken as to find out the difference between the variables as suggested by Henseler et al., (2015) as the variables should not overlap each other and can be identified. Later the correlation between the latent variables also compared with the square root of AVE (Average Variance Extract). Whereas, the AVE should not be greater than the values of discriminant validity. The external consistency of the model is validated by ensuring the reliability of the discriminant validity. Additionally, the data showed in the table 3 is as: EIC=0.873, GC =0.926, GEE=0.811, GHR= 0.907, GIB=0.750).

Table 3 Fornell-Larcker criterion - Discriminant Validity

	EIC	GC	GEE	GHR	GIB
EIC	0.873				
GC	0.974	0.926			
GEE	0.736	0.654	0.811		
GHR	0.973	0.983	0.662	0.907	
GIB	0.602	0.535	0.845	0.547	0.750

Measurement Model (Figure 1)

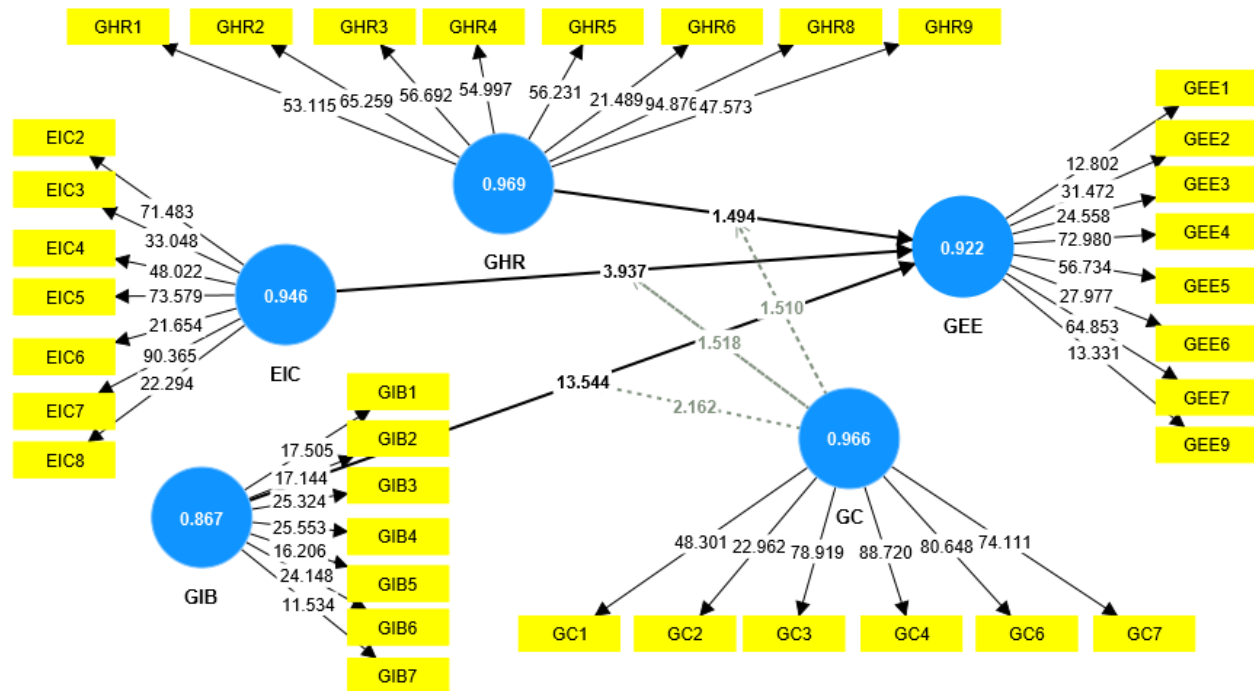


Table 4 Path coefficients

	Mean	STDEV	T values	p values
EIC -> GEE	1.189	1.226	0.302	0.000
GC -> GEE	-0.408	-0.406	0.176	0.021
GHR -> GEE	-0.437	-0.469	0.292	0.135
GIB -> GEE	0.586	0.577	0.043	0.000
GC x GIB -> GEE	-0.113	-0.112	0.052	0.031
GC x EIC -> GEE	0.418	0.426	0.276	0.129
GC x GHR -> GEE	-0.385	-0.394	0.255	0.131

3.3. Structural Equation Model

The current study applied (SEM) Structural Equation Model for examining the developed hypotheses that's why bootstrapping method was adopted. The results as shown in table 4 are as: there is a positive relationship between (EIC -> GEE) empowered interaction capability and green environmental effects and statistically tested as (t=3.937 and p=0.000) therefore the taken hypothesis supported the results. In second hypothesis as given in table as (GC -> GEE) green culture moderates green environmental effects as statistically tested as t=2.318 and p=0.021) therefore it statistically proved that the hypothesis supported and significant in relation. In third hypothesis table shows the results of (GHR -> GEE) relation between green human resources and green environmental effects which reflects the results as (t=1.494 and p=0.135) therefore it is resulted that the relation between green human resources and green environmental effects is not significant thus did not supported the hypothesis and statistically the relation between the variables is not positive. In fourth hypothesis it is depicted that (GIB -> GEE) green innovation behavior and green environmental effects are in positive relation with each other and statistically (t=13.544 and p=0.000) it is said that the variables are positive relation with other and statistically the hypothesis is supported. In the fifth hypothesis it has been shown as per tabulated data that (GC x GIB -> GEE) green culture mediated green innovation behaviors and green environmental behaviors of the employees well and statistically (t=2.162 and p=0.031) the variables are in positive relation and supported the hypothesis. In sixth hypothesis the result suggested that (GC x EIC -> GEE) green culture is not in significant relation with empowered interaction capability and green environmental effects and thus statistically from the given data

($t=1.518$ and $p=0.129$) variable are not in significant in relation and statistically it is also proved as per the extracted data. In seventh hypothesis (GC x GHR \rightarrow GEE) the table shows that green culture mediates significantly the green human resources and green environmental effects and therefore the variables are in significant relation with the mediator and the hypothesis supported the variable and statistically it is also proved that the moderator is in significant relation with each variable. Therefore, all the hypotheses were found supported and significant and statistically proved that they supported the study and found significant at some extent.

4. Discussion and Conclusion

This study revealed positive relationship between green human resources, empowered interaction capability and green innovation behavior of the human resources with green environmental effects. This study further supported by the moderating role of green cultures and elaborated its effects over green human resources, empowered interaction capability, green innovation behavior and on green environmental effects directly. Furthermore, the structural model also resulted positive relationship between the variables i.e. green human resources, empowered interaction capability, green innovation behavior and green culture as moderator. This model also reinforced by the moderation effects of green culture and their effects on green environmental effects. Therefore, the results supported the hypotheses developed on the basis of the literature review and also tested their results statistically. The output therefore depicts the importance of the green environmental effects by practicing green practices of human resources. This study also discussed the impact of the green human resources, empowered interaction capability and green innovation behaviors of the human resources, further it was elaborated that how the moderating variable impacted the dependent and independent variables. This study also emphasized over the importance of moderator and its usefulness in terms of the green environmental effects. Therefore, the green culture moderates the conceptual framework which further founded the grounds for human resources to have green performances. Past studies supports this model and resulted that the green cultures avail better ground for green performances and green environmental effectives, Additionally, this was also of the importance that how the green culture moderates the green human resources, empowered interaction capability, green innovation behavior and green environmental effects. The findings of the study also highlighted the issues pertaining to green environmental effects, this was also of the importance that how performance styles prepare the human resources to have green practices and how HRM have some valued traits to have effective control over the empowered interaction capability of the human resources, moreover, how the HRM traits suggest the human resources to have green innovation behaviors as the green environmental practices and effects can be ensured. This was also the part of the study to elaborate the importance of the green culture and their moderation effects on the human resources that how they are performing at their individual capacities. This was further deliberated that the how HR managers motivate the human resources to apply green innovation behaviors which may ultimate change and make society and environment green. Past studies have also supported this idea where human resources are persuaded to have green performances, green workabilities and green behaviors. However, the readiness of the human resources for the green performance impacts the green environment and make the societies livable. Even the green capabilities and green innovation of the human resources can be enhanced in a way that can change the societies and make the environments green. This further strengthened by HRM styles and traits which alter the performance of the human resources by their persuasions and by their valued inputs. Therefore, the HRM also motivates the human resources to have green output. The HRM policies and procedures also engages the human resources and how empowered interaction capabilities can be ensured that green performance and greener effects can be ensured for the greener organization and societies. Human resources also get improves the green innovative behaviors for the green environmental effects. Therefore, this study proved that green human resources,

empowered interaction capability and green innovation behaviors of the human resources are effectively moderated by the green culture as it plays very vital role for the green environmental effects.

4.1. Limitations and Future Recommendations

It is essential that scope of the study be broadened at country level for more effective results. This study took very chosen sample size and population as targeted. The future studies may extend and vary their target population and sample size for better output. The future study can also take larger sample size and broaden their research boundaries up to Pakistan level. However, due to time limits, security concerns and short of budget this research piece could not reach up to the country areas and other industries working in this country. This study is cross sectional, whereas, the future studies may adopt longitudinal study as the results may be made differ than the current ones and can be more effective from other aspects and angles. However, the future studies may also apply more variable and test the mediation and different moderation with other dependent and independent variables for better results as this issue may be explored at large.

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Contribution Statement

MS: conceptualized and wrote the introduction.

HM: data interpretation and hypothesis development.

AA: data collection and data analysis.

AZ: revision of the manuscript and editing.

BS: wrote the conclusion and discussion sections.

RA: literature review and wrote the methodology section.