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Effect of Green Training on Individual Environmental Performance: Evidence from Oil and Gas Industry in Iraq

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ABSTRACT

As the globe faced major environmental concerns, it has become necessary for companies to look into means through which they can enhance their employee's environmental performance. Therefore, the present study investigates the nexus between green training (GT) and individual environmental performance (IEP). In this quantitative study, data were collected from 170 employees in the oil and gas industry (O and GI) in Iraq and analyzed by using a structural equation modeling technique by Smart PLS software. The finding presents a strong positive and significant relationship between GT and IEP. The study also shows important and prominent implications from theoretical and practical perspectives.

Keywords: Green Training, Environmental Performance, Oil and Gas Industry, Quantitative Method, Partial Least Square-Structural Equation Modeling

JEL Classifications: Q52, Q56, Q58, Q380

1. INTRODUCTION

At present, the industrial practices of individuals in oil and gas companies in Iraq has become one of the main causes of environmental pollution issues. In view of this, companies looking to improve their environmental performance have realized that green training (GT) is one of the most critical green human resource management practices (GHRMP) that lead to this (Pinzone et al., 2019). In this regard, the environmental performance of the oil industry in Iraq still needs much improvement (Ibrahim et al., 2020; Ibrahim et al., 2019a). For instance, 70% of the main locations of the production and exploration of petroleum and gas in Iraq have issues of environmental pollution and involve cities such as Basra, Maysan, Kirkuk, Baghdad, Mosul, and Salah al-Din (Al-Haleem et al., 2013). Besides, Jawda and Jaafar (2018) reported in their study that the Iraqi oil and gas industry (O and GI) harms the environment through the solid, liquid and gaseous oil pollutants it

poses. In addition, in the agenda of the United Nations 2030 that involves 17 sustainable development goals, goal 13 emphasizes the need to take rapid initiatives to address issues of climate change and its consequences, through practices that support environmental management and the development of human and institutional capacities and knowledge towards environmental protection (UN, 2015). This is because employees are responsible for the green practices that lead to achieving environmental goals for companies (Jackson et al., 2012).

Although the relationship of GHRMP, including GT, with environmental performance has been studied in the literature (e.g., Anwar et al., 2020; Elshaer et al., 2021; Gilal et al., 2019; Kim et al., 2019; Obeidat et al., 2020), its study in oil and gas context, particularly in Iraq, is still very limited. Therefore, the current study aims to study the effect of GT on individual environmental performance (IEP) in the O and GI in Iraq.

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2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Green Training

Green training (GT) is defined as "a process of on-the-job training and continued education designed to achieve corporate environmental management targets and purposes" (Daily and Huang, 2001). Besides, Jabbour (2011) defined GT as a set of activities that motivates staff to gain environmental skills and to pay attention to environmental concerns that are crucial to meeting environmental goals. Among GHRMP, GT is one of the most important factors that companies focus on (Jabbour et al., 2013) and it is also recognized as a crucial practice for the implementation of environmental management (Jabbour et al., 2010).

Based on the Ability-Motivation-Opportunity (AMO) theory, employees are more productive when enough abilities, motivation and organizational opportunities are offered for them (Pinzone et al., 2019). In view of this, GT is a practice to promote the ability (Renwick et al., 2013), which helps in increasing the skills, knowledge and awareness of employees related to the green side (Pinzone et al., 2019), as well as support many solutions to decrease environmental effects (Siyambalapitiya et al., 2018).

The adoption of GT in companies has important positive environmental results. (1) GT can improve employee's knowledge of pro-environmental workplace actions (Tang et al., 2018). (2) GT provides management of knowledge that helps staff to implement environmental initiatives (del Brío et al., 2007). (3) GT creates a climate that motivates all employees to participate in environmental initiatives (Fernández et al., 2003; Tang et al., 2018). Therefore, companies that implement GT will have the environmental performance of their employees at satisfactory levels.

2.2. Individual Environmental Performance

Ciocirlan (2017, p. 64) stated that workplace "sustainability at the macro level starts with individual action," that's mean environmental performance on the organizational level may originate from the gathering of environmental performance for individual (Wells et al., 2016). Since environmental literature shows that environmental performance is variously interpreted based on the focus on individual or organizational level (Paillé et al., 2020), Ones and Dilchert (2012b, p. 451) recommend it is more suitable to focus on staff and, in a more specific way, perceptions of employees of organizational environmental performance because employees "will provide a more accurate picture of environmental performance."

In view of this, organizational environmental results seem to depend on internal environmental activities that arise from efforts by individuals in the organization themselves to enhance or make business/industrial operations sustainable. Individual performance is established when people feel that their initiatives and job results lead to achieving organizational goals (Ordu, 2016). Against this background, IEP shows in detail the level that employees realize that they are effectively engaged in environmental activities or green initiatives that are consistent with what their company wants from them to achieve its environmental goals (Paillé et al., 2020).

IEP is achieved by a broad variety of environmental behaviors for individuals (Ones and Dilchert, 2012a). Based on the work they hold, and their job activities, employees have the possibility of reducing environmental effects on behalf of their firm (Paillé et al., 2020). For example, using the phone call instead of using the car to go to other locations in the company to reduce transportation emissions. Also, use online meetings instead of travelling to conduct meetings. Besides, focus on electronic correspondence, and avoid print unnecessary emails. In addition to reducing electrical energy consumption by turning off all devices and lighting when leaving the workplace. Consequently, the environmental efforts of individuals in practicing their jobs are the main reason behind improving the environmental performance of their companies.

2.3. Relationship between Green Training and Individual Environmental Performance

Based on an extensive review of the GHRMP literature, previous studies have demonstrated that GHRMP has a significant and positive impact on environmental performance (e.g., Anwar et al., 2020; Elshaer et al., 2021; Gilal et al., 2019; Kim et al., 2019; Obeidat et al., 2020). For instance, Chen et al. (2021) in Chinese companies in the oil and mining industry, confirmed that GHRMP has positive effect on green behaviors of voluntary in workplace. Also, in Malaysian 5-star hotels, Yusoff et al. (2020) concluded that the GT and development have a significant and positive relationship with environmental performance. Moreover, Pinzone et al. (2019) in their study in the healthcare sector in Italia, pointed out there is positive impact of GT on IEP. According to that, we suggest that GT has a significant and positive effect on IEP. Therefore, the following hypothesis is offered:

Hypothesis1(H1): Green training has significant and positive effect on individual environmental performance in the oil and gas industry in Iraq.

3. RESEARCH METHODS

3.1. Measures

The measurements that used in the current study to measure all variables was employed a 6-point Likert scale. The type of 6-Likert scale in this study ranging "1" = "Strongly Disagree"; "2" = "Moderately Disagree"; "3" = "Slightly Disagree"; "4" = "Slightly Agree"; "5" = "Moderately Agree"; and "6" = "Strongly Agree." The reason for used the 6-point Likert scale was to ensure that respondents did not simply select the "indifference" choice or "midpoint," as commonly happen with a five-point scale. It was also found that the validity and reliability of the findings tend to be higher for the even number response scale a six-point in particular (Chomeya, 2010).

All measure items were adapted from validated measures by the previous studies. The questionnaire was formed in English language and then translated to Arabic language. Following (Usunier, 1998, p. 51), this study adopted the back-translation technique to ensure the accuracy of the questionnaire presented to the target respondents. After that some revisions were conducted, to suit with the context of the present study. Then, pre-testing of the questionnaire based on the feedback provided through four academicians experts who are specialists in GHRMP and environmental management areas and six professionals in the O and GI. GT was measured using an items adapted from Alfes et al. (2012), Tang et al. (2018), Pinzone et al. (2019), Paillé et al. (2020), and Chen et al. (2021), which were six items. At the same time, the items that used to measure IEP was adapted from Boiral and Paillé (2012) and Paillé et al. (2020), which were ten items.

3.2. Population and Sample

Data were collected from companies working in the Iraqi O and GI. The O and GI is one of the most top sectors that largely contributed to the GDP of Iraq (Ibrahim, 2020). The contribution is very important, especially in employment opportunities and exports (Ibrahim, 2020; Ibrahim et al., 2019b). Consequently, the population in this study is the companies in the O and GI in Iraq. Hence, the respondents of this study were from the rank of employees in the O and GI in Iraq. The research hypothesis was tested through collecting data by a quantitative methodology with employ strategy of data collection by online survey. To ensure obtaining respondents from various oil companies throughout Iraq, the online questionnaire was posted in the Facebook groups of employees of oil and gas companies in Iraq. A number of 170 valid responses were obtained.

As shown in Table 1, out of the 170 respondents, 137 were male, and 33 stated as female. Regarding the age, most of respondents were between 36 and 45 years which was 77, followed by 26-35 years (70), whereby the remaining 23 stated having <25 years. In terms of education level, 74 recorded have a master's degree, 60 reported having bachelor's degree, 19 PhD, 16 diploma and 1 only secondary school. In connection to job type, 96 of them have managerial job type while 74 of them having technical job type. Lastly, in terms of the number of green training courses, 97 didn't participate in any courses, 40 of them participated in 3 and more courses, 17 of them only one course and 16 of them two courses only.

3.3. Data Analysis Method

To test the model of this study, partial least square-structural equation modeling (PLS-SEM) approach was used. This approach is broadly used not only in business and management studies but further in essentially all social sciences areas (Hair et al., 2012; Henseler et al., 2015). The current study applied the SmartPLS 4 software (Ringle et al., 2015). PLS-SEM includes two stages of assessment. The first stage, assessment of the measurement model and second stage, assessment of the structural model (Henseler et al., 2009). Details and criteria for each stage will be explained in the findings section.

4. RESULTS AND DISCUSSION

4.1. Measurement Model

The current study employed the two-stage approach as recommended through Anderson and Gerbing (1988). First stage, the study evaluated convergent validity, reliability, and the discriminant validity. Convergent validity can be achieved if the loadings are >0.7 (Bagozzi and Yi, 1988), composite reliability (CR) larger than 0.7 (Gefen et al., 2000) and the average variance extracted (AVE) is larger than 0.5 (Hair et al., 2014) as shown in Table 2 and Figure 1 Therefore, the measurement model analysis achieved sufficient convergent validity because it satisfied the criterions stated above, except the loading for items IEP1 (0.634) and IEP5 (0.699) is <0.70, however, it is not omitted because the AVE value for this construct is >0.60 (Byrne, 2016; Ramayah et al., 2018).

Furthermore, the present study assessed the discriminant validity using the heterotrait-monotrait ratio of correlations (HTMT) which

Fable 1: Profile of responder	its
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Demographic factors	Frequency	Percentage
Gender		
Male	137	81
Female	33	19
Age (year)		
<25 years	23	14
26-35	70	41
36-45	77	45
Education		
Secondary school	1	1
Diploma	16	9
Bachelor	60	35
Master	74	44
PhD	19	11
Job type		
Managerial	96	56
Technical	74	44
Green training courses		
No courses	97	57
1 course	17	10
2 courses	16	9
3 or more courses	40	24

Table 2: Findings of convergent validity and reliability

Construct	Item	Loading	CR	AVE
Green training	GT1	0.855	0.940	0.724
	GT2	0.853		
	GT3	0.815		
	GT4	0.912		
	GT5	0.857		
	GT6	0.811		
Individual environmental	IEP1	0.634	0.945	0.635
performance	IEP2	0.810		
*	IEP3	0.838		
	IEP4	0.803		
	IEP5	0.699		
	IEP6	0.832		
	IEP7	0.858		
	IEP8	0.886		
	IEP9	0.768		
	IEP10	0.810		

Table 3: Discriminant validity by HTMT

Variable	Green training	Individual
		environmental
		performance
Green training		
Individual environmental	0.662	
performance		

Table 4	I: Finding	of hypothesis	testing
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Figure 2: Structural model



its value should be <0.85 (Henseler et al., 2015). Consequently, the value of the HTMT has been achieved the discriminant validity, as display in Table 3.

4.2. Structural Model

After that, the structural model was tested. The findings are shown in Table 4 and Figure 2. The R² is 0.404 that's mean 40% of the variance in environmental performance was explained by the GT, hence, this percentage deserves interest by the O and GI regarding GT. Moreover, bootstrapping by 500 resamples was managed to test the hypothesis. Accordingly, the empirical findings in this study confirm that there was a positive and significant relationship between GT and IEP ($\beta = 0.635$, t = 8.707, P = 0.000).

5. DISCUSSION

The result of H 1 by PLS-SEM confirms that the independent predictor variable of GT was positively and significantly related to the dependent variable of IEP. A positive direct relationship of GT on the IEP construct is in line with the predicted direction, therefore H1 is supported.

The finding of this study is consistent with the results of previous studies that have investigated the effect of GT on IEP (e.g., Anwar et al., 2020; Elshaer et al., 2021; Gilal et al., 2019; Kim et al., 2019; Obeidat et al., 2020). Basically, these studies highlighted

the significant influence that GT can have on the IEP. Therefore, the results of these studies inferentially support the argument that promoting GT will help to improve IEP. Likewise, the knowledge, ability and awareness of employees in the O and GI in Iraq about environmental management and GT contribute significantly to improving IEP in their companies.

6. CONCLUSION AND IMPLICATIONS

The conclusions of the current study offering important contributions from theoretical and practical perspectives. Notably, this study has addressed significant gap in the GT topic in its relationship with IEP in the O and GI in Iraq. Consequently, to the knowledge of the author, the current study looks to be amongst the first attempts examining the relationship between GT and IEP in the O and GI in Iraq. From the above discussion, it can be concluded that GT will lead to IEP in the O and GI in Iraq. The present study has added useful empirical evidence focus on how GT in the oil and gas sector can lead towards pro-environment initiatives and individual performance. Moreover, the encouraging statistical findings educate on how employees benefit from their GT for environmental performance and outcomes.

Subsequently, this study further offers some significant practical implications. As the current study was curry out across O and GI in Iraq, this study highlights the need for top management, managers and employees in the oil and gas companies in Iraq to looks to give the priority to GT. The results indicate for the O and GI that promoting IEP is linked with the GT for employees. This study suggests an important idea for O and GI in Iraq to work on green skills, capabilities, and abilities to make the employees have responsibility towards environment. In this regard, GT programs and courses can be benefit in enhancing employees' abilities, skills, and capabilities. Furthermore, learning programs followed by top management support may encourage employees

support environmental actions as well for enhanced environmental performance.

Further, it is necessary that the training and development departments of the oil and gas companies in Iraq interest of the workshops and training courses on environmental management and GHRMP in general, and GT in particular. This can be done using employees who have master and PhD and specialists in this field in the oil and gas companies, and to encourage and motivate them financially and morally to provide workshops and training courses on these topics. Next, there will be an increased awareness, knowledge, and skills of employees about environmental practices, which will lead to improved environmental performance.

REFERENCES

- Alfes, K., Shantz, A., Truss, C. (2012), The link between perceived HRM practices, performance and well-being: The moderating effect of trust in the employer. Human Resource Management Journal, 22(4), 409-427.
- Al-Haleem, A.A., Awadh, S.M., Saeed, E.A.J. (2013), Environmental Impact from Drilling and Production of Oil Activities: Sources and Recommended Solutions. In: Paper Presented at the International Conference on Iraq Oil Studies, Iraq.
- Anderson, J.C., Gerbing, D.W. (1988), Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411-423.
- Anwar, N., Nik Mahmood, N.H., Yusliza, M.Y., Ramayah, T., Noor Faezah, J., Khalid, W. (2020), Green human resource management for organisational citizenship behaviour towards the environment and environmental performance on a university campus. Journal of Cleaner Production, 256, 120401.
- Bagozzi, R.P., Yi, Y. (1988), On the evaluation of structural equation models. Journal of the Academy of Marketing Science, 16(1), 74-94.
- Boiral, O., Paillé, P. (2012), Organizational citizenship behaviour for the environment: Measurement and validation. Journal of Business Ethics, 109(4), 431-445.
- Byrne, B.M. (2016), Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming. United Kingdom: Routledge.
- Chen, S., Jiang, W., Li, X., Gao, H. (2021), Effect of employees' perceived green hrm on their workplace green behaviors in oil and mining industries: Based on cognitive-affective system theory. International Journal of Environmental Research and Public Health, 18(8), 4056.
- Chomeya, R. (2010), Quality of psychology test between Likert scale 5 and 6 points. Journal of Social Sciences, 6(3), 399-403.
- Ciocirlan, C.E. (2017), Environmental workplace behaviors: Definition matters. Organization and Environment, 30(1), 51-70.
- Daily, B.F., Huang, S.C. (2001), Achieving sustainability through attention to human resource factors in environmental management. International Journal of Operations and Production Management, 21(12), 1539-1552.
- Del Brío, J.Á., Fernández, E., Junquera, B. (2007), Management and employee involvement in achieving an environmental action-based competitive advantage: An empirical study. The International Journal of Human Resource Management, 18(4), 491-522.
- Elshaer, I.A., Sobaih, A.E.E., Aliedan, M., Azazz, A.M.S. (2021), The effect of green human resource management on environmental performance in small tourism enterprises: Mediating role of proenvironmental behaviors. Sustainability, 13(4), 1956.
- Fernández, E., Junquera, B., Ordiz, M. (2003), Organizational culture and human resources in the environmental issue: A review of

the literature. The International Journal of Human Resource Management, 14(4), 634-656.

- Gefen, D., Straub, D., Boudreau, M.C. (2000), Structural equation modeling and regression: Guidelines for research practice. Communications of the Association for Information Systems, 4(1), 1-77.
- Gilal, F.G., Ashraf, Z., Gilal, N.G., Gilal, R.G., 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, 26(6), 1579-1590.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. (2014), Multivariate Data Analysis. 7th ed. United Kingdom: Pearson Education Limited.
- Hair, J.F., Sarstedt, M., Pieper, T.M., Ringle, C.M. (2012), Applications of partial least squares path modeling in management journals: A review of past practices and recommendations for future applications. Long Range Planning, 45(5-6), 320-340.
- Henseler, J., Ringle, C.M., Sarstedt, M. (2015), A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115-135.
- Henseler, J., Ringle, C.M., Sinkovics, R.R. (2009), The use of partial least squares path modeling in international marketing. In: New Challenges to International Marketing. United Kingdom: Emerald Group Publishing. p277-319.
- Ibrahim, Y.M. (2020), The Moderating Role of Sustainable Maintenance on the Relationship between Sustainable Manufacturing Practices and Sustainable Performance for Oil and Gas Industry. (PhD thesis). Universiti Utara Malaysia.
- Ibrahim, Y.M., Hami, N., Abdulameer, S.S. (2020), Assessing sustainable manufacturing practices and sustainability performance among oil and gas industry in Iraq. International Journal of Energy Economics and Policy, 10(4), 60-67.
- Ibrahim, Y.M., Hami, N., Othman, S.N. (2019a), Assessing of imbalance among economic, environmental and social sustainability: Evidence from oil and gas industry in Iraq. Journal of Physics: Conference Series, 1294, 072006.
- Ibrahim, Y.M., Hami, N., Othman, S.N. (2019b), Integrating sustainable maintenance into sustainable manufacturing practices and its relationship with sustainability performance: A conceptual framework. International Journal of Energy Economics and Policy, 9(4), 30-39.
- Jabbour, C.J.C., de Sousa Jabbour, A.B.L., Govindan, K., Teixeira, A.A., de Souza Freitas, W.R. (2013), Environmental management and operational performance in automotive companies in Brazil: The role of human resource management and lean manufacturing. Journal of Cleaner Production, 47, 129-140.
- Jabbour, C.J.C., Santos, F.C.A., Nagano, M.S. (2010), Contributions of HRM throughout the stages of environmental management: Methodological triangulation applied to companies in Brazil. The International Journal of Human Resource Management, 21(7), 1049-1089.
- Jabbour, J.C.C. (2011), How green are HRM practices, organizational culture, learning and teamwork? A Brazilian study. Industrial and Commercial Training, 43(2), 98-105.
- Jackson, S.E., Ones, D.S., Dilchert, S. (2012), Managing Human Resources for Environmental Sustainability. Vol. 32. United States: John Wiley and Sons.
- Jawda, N.H., Jaafar, H.N. (2018), The developmental effects of oil industry in Iraq (Developmental of oil industry and ist reflection on environment in Iraq). Journal of Economic Sciences, 13(51), 23-43.
- Kim, Y.J., Kim, W.G., Choi, H.M., Phetvaroon, K. (2019), The effect of green human resource management on hotel employees' eco-friendly

behavior and environmental performance. International Journal of Hospitality Management, 76, 83-93.

- Obeidat, S.M., Al Bakri, A.A., Elbanna, S. (2020), Leveraging "Green" human resource practices to enable environmental and organizational performance: Evidence from the qatari oil and gas industry. Journal of Business Ethics, 164(2), 371-388.
- Ones, D.S., Dilchert, S. (2012a), Employee green behaviors. In: Managing Human Resource for Environmental Sustainability.San Francisco: Josey-Bass. p85-116.
- Ones, D.S., Dilchert, S. (2012b), Environmental sustainability at work: A call to action. Industrial and Organizational Psychology, 5(4), 444-466.
- Ordu, A. (2016), The effects of diversity management on job satisfaction and individual performance of teachers. Educational Research, 11(3), 105-112.
- Paillé, P., Valéau, P., Renwick, D.W. (2020), Leveraging green human resource practices to achieve environmental sustainability. Journal of Cleaner Production, 260, 121137.
- Pinzone, M., Guerci, M., Lettieri, E., Huisingh, D. (2019), Effects of "green" training on pro-environmental behaviors and job satisfaction: Evidence from the Italian healthcare sector. Journal of Cleaner Production, 226, 221-232.
- Ramayah, T., Cheah, J.H., Chuah, F., Ting, H., 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. 2nd ed. Kuala Lumpur, Malaysia: Pearson.

- Renwick, D.W.S., Redman, T., Maguire, S. (2013), Green human resource management: A review and research agenda*. International Journal of Management Reviews, 15(1), 1-14.
- Ringle, C.M., Wende, S., Becker, J.M. (2015), SmartPLS 3. Boenningstedt: SmartPLS GmbH. Available from: https://www.smartpls.com
- Siyambalapitiya, J., Zhang, X., Liu, X. (2018), Green human resource management: A proposed model in the context of Sri Lanka's tourism industry. Journal of Cleaner Production, 201, 542-555.
- Tang, G., Chen, Y., Jiang, Y., Paillé, P., Jia, J. (2018), Green human resource management practices: Scale development and validity. Asia Pacific Journal of Human Resources, 56(1), 31-55.
- UN. (2015), Transforming our World: The 2030 Agenda for Sustainable Development. United Nations. Available from: https:// sustainabledevelopment.un.org/post2015/transformingourworld/ publication
- Usunier, J.C. (1998), International and Cross-Cultural Management Research. United States: SAGE Publications.
- Wells, V.K., Taheri, B., Gregory-Smith, D., Manika, D. (2016), The role of generativity and attitudes on employees home and workplace water and energy saving behaviours. Tourism Management, 56, 63-74.
- Yusoff, Y.M., Nejati, M., Kee, D.M.H., Amran, A. (2020), Linking green human resource management practices to environmental performance in hotel industry. Global Business Review, 21(3), 663-680.