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Research Article
Ability, Motivation and Opportunity as Determinants of Green Human Resources Management Innovation

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Abstract
The buzzing world of sustainability has led to soaring growth of literature on green marketing, green accounting, green retailing, green supply chain management and green general management. Green Human Resource Management (GHRM) studies on how this field contributes to preserving the environment is hardly found. The polarization between "Best fit" and best practice in HRM make difficult to measure human resource management output. Drawing on the classical Ability Motivation Opportunity (AMO) framework emphasizing the necessity of employees to possess abilities, motivation and be given opportunity to perform, Structural Equation Modelling (SEM) is used to spot the terrain for further study on green human resources management as an innovation in Malaysian setting. As most innovations are related to product development, this study highlights GHRM practices as a process innovation in responding to the current trend shifting from pro-economic to pro-social then pro-environment. This way, under the AMO concept, this study scrutinizes the necessity to initiate GHRM practices in manufacturing companies of Malaysia as a process innovation by integrating people, process, technology and the organization. Finally, the model is expected to support the recent National Green Policy.

Key words: SEM, green human resources innovation, green ability, green motivation, green employees, green opportunity

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INTRODUCTION

Recently management scholars show greater concern about the sustainability of environment proved with the tremendous growth of research literature on green marketing (Gordon *et al*., 2011), green accounting (Gray and Laughlin, 2012), green retailing (Lai and Wong, 2012), green supply chain management (Sarkis *et al*., 2011) and green general management (Lee, 2009). While, these management thinkers are currently immersed themselves in assessing their expertise on how to contribute to make a world a better place to live in, HRM academia and experts seem reluctant to come to the arena making it difficult to put forward what management of people issues to highlight when reviewing GHRM (Renwick *et al*., 2013).

In the context of Malaysia, National Green Technology Policy accentuates development in the area of energy, building, water and waste management and transportation as forms of product innovation. However, the progress remains slow even though various incentives have been disseminated. As such it is time now to observe the process innovation. Since marketing should be done both in external (customer-based) and internal (employee's-based), the model that develop will support the existing government policy by providing the model on organizational HRM green practices as process innovation for it is hard to convince customers to switch to a green product unless it is started from within. With this analogy, there is a space for GRHM practice as an innovation to support government policy.

While, many types of research observing success factors in product innovation consistently overlooked the effect of country culture (Ernst, 2002; Cooper and Kleinschmidt, 2007; Evanschitzky *et al*., 2012), still few researchers conducted research on process innovation-defined as the overview of first-hand or considerably enhanced administrative procedures (Keupp *et al*., 2012), leading to environmental sustainability. However, McElheran (2013) contended that process innovations are usually hard to study as obtaining necessary data on this might be full of twists and turns. This is due to the fact that innovation for sustainable development in the area of human resources requires amendment and adoption in the current organizational practices (Mishra *et al*., 2014). Thus, GHRM as an innovation process at a company in streaming towards a more friendly environmental organization will face the reluctance of employees to change, less attention both conceptually and empirically than product innovation besides the lack behind compared to other business studies in sustainability. As a result, our perceptive of the antecedents and effects of green human resources management innovation to business performance remains restrained.

Due to the popularity of Ability Motivation Opportunity (AMO) theory in postulating the effect of HRM practices to organizational performance (Boselie *et al*., 2005), the theory is then used to highlight the respective issues. Under AMO theory, HRM is exerted by boosting employee's ability through enticing and developing employees to become high-performer, augmenting employee's motivation and commitment by giving conditional rewards as well as conducting effective performance management and lastly providing an opportunity for employees to involve in knowledge-sharing and problem-solving activities. Thus, the following hypothesis are proposed:

- Developing green abilities positively affect green human resources management innovation
- Motivating employees to be green practiced compliance positively affects green human resources management innovation
- Provides green opportunities positively affects green human resources innovation
- Since environmental involvement is, in general, one of the most longstanding and most researched areas of HRM, providing green opportunities is expected to be the most influential determinants of green human resources innovation

MATERIALS AND METHODS

Design and sample: This study uses quantitative methods of data intending to analyze the specific company's green human resources management innovation practices in the domains of developing green abilities, motivating green employees and providing green opportunities in Malaysian manufacturing sectors. The target population of this study is managers in manufacturing sectors in Malacca. This region is chosen as at the moment it has already started on a route to sustainable urban development reflected in government-directed policies and projects to enhance liveability. The state has taken the movement in formulating a wide-ranging approach towards urban sustainability by implementing the Green Technology Blueprint in 2011 and reinforced a vision to convert Melaka into a Green Technology state by 2020. The writer applies stratified random

Table 1: List of variables and indicators

Variable	Dimension	Indicators
Ability	Recruitment	• Understanding an organization's environmental culture • Attention to the environmental management practices
	Training	• Raising the level of eco-literacy • Collecting relevant waste data
	Personal values	• Altruism • Biopherism
Motivation	Monetary reward	• Incentives • Compensation scheme
	Non-monetary reward	• Environmental reward • Being green company's recognition
Opportunity	Involving employees	• Using resources efficiently • Reducing waste and pollution from workplace
	Empowering employees union	• Encouraging employees to create green job • Extending influence in the workplace
HRM innovation	People related process	• Participation of employees as part of green initiatives • Initiation of environment-friendly activities
	Technology related process	• Online training • Optimal use of office space

sampling to obtain a proportional distribution of sampling in small, medium and big sized companies resulting in 50 small-sized companies, 59 medium-sized companies and 50 large-sized companies totally 159 data ready for processing. The indicators are specified in Table 1.

By using Structural Equation Model (SEM), the rule of thumb is that the minimum is to have at least five times as many observations (Hair *et al*., 2006; Sekaran, 2003). As there were 18 indicators to be tested, a sample of 159 falls within an acceptable sample range.

Measurement: All instruments incorporated in the questionnaire were based on the previous literature analysis. Additionally, all questions were consulted with a panel of scholar and industrial experts in to assess the validity of items in the questionnaires. The seven-point likert-type scales (1: Strongly disagree, 7: Strongly agree) were applied throughout the questionnaire. The HRM innovation as an endogenous construct is measured with two dimensions: People related process (H1) and technology related process (H2). People related process has two indicators: Participation of employees as part of green initiatives (GHI01) and initiation of environment friendly activities (GHI02) while, technology related process is measured with indicators of online training (GHI03) and optimal use of office space (GHI04) developed by Mandip (2012) and Mishra *et al*. (2014). Developing green ability as endogenous construct is measured with three dimensions: Recruitment (A1), training (A2) and personal values (A3) with two indicators each: Understanding an organization's environmental culture (GA01), attention to the environmental management practices (GA02), raising the level of eco-literacy (GA03), collecting relevant waste data (GA04), altruism (GA05) and biopherism (GA06). Collecting relevant waste data which part of training in the next process is dropped due to the factor loading which is below 0.5. Factors loading are used to assess discriminant validity requiring factors loading exceed 0.50 (Hair *et al.,* 2006). Another endogenous construct: Motivating green employees is measured with two dimensions: Monetary reward (M1) and non-monetary reward (M2) with also two indicators each: Incentives (GM01), compensation scheme (GM02), environmental reward (GM03) and being green company's recognition (GM04) developed by Jackson *et al*. (2011). Similarly, providing green opportunity is measured with two dimensions: Involving employees (O1) and empowering employees union (O2) with two indicators each: Using resources efficiently (GO01), reducing waste and pollution from workplace (GO02), encouraging employees to create green job (GO03) and extending influence in workplace (GO04) developed by Renwick *et al*. (2013).

RESULTS

Measurement model: Table 2 shows that the factors loading extracted all surpassed 0.50 indicating that the instrument had acceptable convergent validity.

Structural equation modeling usually presents debates on model evaluation as no model can actually meet all the required criteria (Schumacker and Lomax, 2004; Marsh *et al*., 2004). For example, SEM requires a small value

Table 2: Measurement information (convergent validity)

			Estimate
O2	<---	Opportunity	0.995
HI1	<---	GHRM Innovation	0.995
HI2	<---	GHRM Innovation	0.994
O1	<---	Opportunity	0.990
M2	<---	Motivation	0.996
M1	<---	Motivation	0.774
A1	<---	Ability	0.939
A3	<---	Ability	0.993
A2	<---	Ability	0.996
GA02	<---	A1	0.858
GA01	<---	A1	0.758
GA03	<---	A2	0.898
GA06	<---	A3	0.844
GA05	<---	A3	0.613
GO03	<---	O2	0.717
GO04	<---	O2	0.887
GO01	<---	O1	0.667
GO02	<---	O1	0.921
GHI02	<---	HI1	0.920
GHI01	<---	HI1	0.732
GM02	<---	M1	0.677
GM01	<---	M1	0.997
GM04	<---	M2	0.812
GM03	<---	M2	0.709
GHI04	<---	HI2	0.741
GHI03	<---	HI2	0.754

Table 3: Results for the hypothesis testing

Constructs			Estimate (β)	SE	CR	P
GHRM innovation	<---	Motivation	0.271	0.096	2.817	0.005
GHRM innovation	<---	Ability	-0.237	0.084	-2.832	0.005
GHRM innovation	<---	Opportunity	0.299	0.087	3.440	0.000

for chi-square statistic (χ^2) and probability (p-value) smaller than 0.05. However, though these statistics are usually reported in structural equation modeling results, they are seldom accounted for and mostly ignored by referring to other alternative ways of assessing model fit (Robins *et al*., 2007). The reason given is that chi-square statistic (χ^2) and Probability (P) are sensitive to sample size thus the bigger the sample then the smaller the chi-square statistic and the higher the probability. Hu and Bentler (1999) argued that threshold values approaching to 0.95 for Tucker Lewis Index (TLI), 0.90 for Norm Fit Index (NFI), 0.90 for Incremental Fit Index (IFI), 0.06 for Root Mean Square Error of Approximation (RMSEA) may sufficiently support the conclusion of a reasonably good fit between the proposed model and the data. Other scholars proposed other goodness-of-fit statistics consisting of (CMIN/DF) the minimum sample discrepancy function supposed ≤2, 0 (Arbuckle, 2005), Goodness-of-Fit Index (GFI) approximating 0.90 and Adjusted Goodness of Fit Index (AGFI) approaching to 0, 90 or higher (Hair *et al*., 2006).

By referring to χ^2 test (χ^2 = 204.345) and probability (p = 0.000), this model cannot capture goodness-of-fit of the model, perhaps due to the model which is complicated and the smallness of sample size. However, when observed from other measurement, the model indicates an acceptable fitness: CMIN/DF = 1.702 (expected smaller than 2), GFI = 0.879 (close to 0.90), AGFI = 0.833 (close to 0.90), TLI = 0.934 (close to 0.95), NFI: 0.880 (close to 0.90), IFI = 0.947 (above 0.90) and RMSEA: 0.067 = in the borderline of 0.06.

The full model of the research after model specification to meet SEM requirement is observable on the Fig. 1. Research instrument is reliable if the value of construct reliability >0.70 (Nunnally and Bernstein, 1994). Construct validity defines how well a test or experiment measures up to its claims. In SEM, construct validity is represented with the Greek symbol rho and eta ($\rho\eta$) where the values for the exogenous and endogenous construct are 0.869, 0.893, 0.903 and 0.802 correspondingly. All scores surpassed the threshold of 0.70 validating that the instrument had a good reliability.

Structural model: The proposed structural model has been examined through the significance of the path coefficients (standardized β) and by observing the probability values of the dependent (endogenous) variables. The model depicted in Table 3 proved all the three variables; developing green abilities, motivating green employees and providing green opportunities in the organizations are significant endogenous variables for innovative green human resources management serving as exogenous variables. The model has predictive relevance when Probability (P) is smaller or equal to 0.005. The results have shown that ability has a strong significant positive effect on GRHM-innovation (β = -0.237, CR = - 2.832, $p \leq 0.005$), thus, hypothesis H1 was supported. The negative β coefficient indicates that the less effort performed by the company to develop green ability will decrease the ability of employees to perform the job requiring green practice compliance.

With regards to the hypotheses H2 and H3, motivation is significantly related to GHRM-innovation (β = 0.271, CR = 2.817, $p \leq 0.005$) and opportunity (β = 0.299, CR = 3.440, $p \leq 0.000$), therefore hypotheses H2 and H3 were accepted. This suggests that motivation and opportunity directly affect GHRM-innovation. Observing the highest value of CR for opportunity variable, this confirms the H4: Green opportunities is the most influential determinants of green human resources innovation.

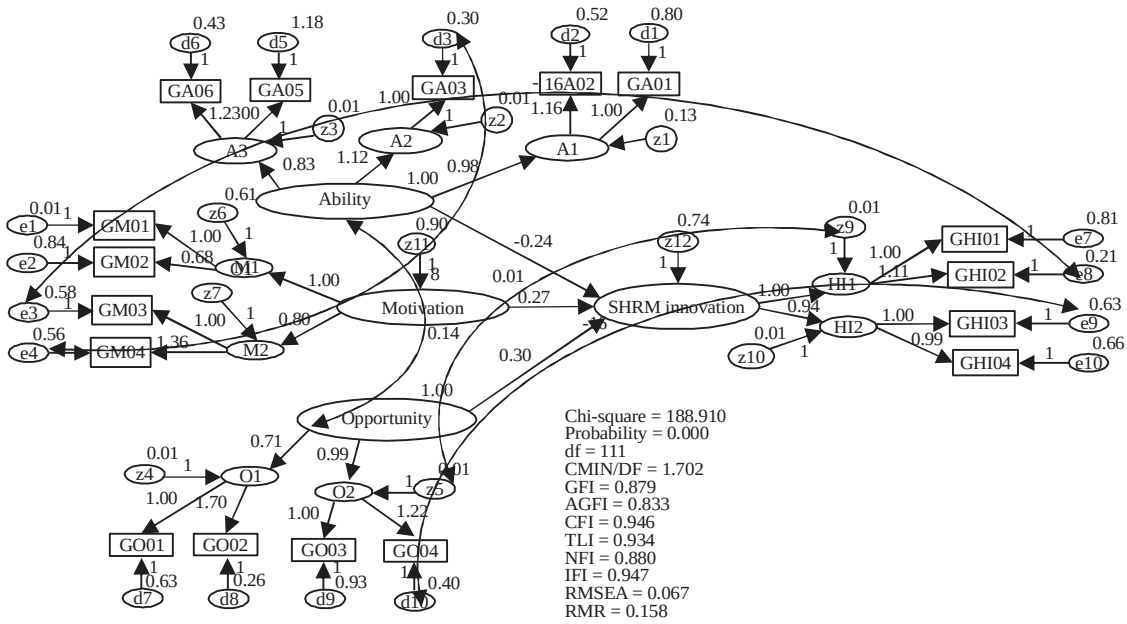

Fig. 1: Full model describing relationship among construct, H1: People related process, H2: Technology related process, GHI02: Environment friendly activities, GHI03: Online training, GHI04: Use of office space, A1: Recruitment, A2: Training, A3: Personal values, GA01: Organization's environmental culture, GA02: Environmental management practices, GA03: Level of eco-literacy, GA04: Collecting relevant waste data, GA05: Altruism, GA06: Biopherism, M1: Monetary reward, M2: Non-monetary reward, GM02: Incentives compensation scheme, GM03: Environmental reward, GM04: Green company's recognition, O1: Involving employee's, 02: Empowering employees union, GO01: Using resources efficiently, GO02: Reducing waste and pollution from work place, GO03: Encouraging employee's to create green job and GO04: Extending influence in workplace

DISCUSSION

The findings that GHRM innovation within Malaysian setting, when ranked from the highest to the lowest, was determined by opportunity, motivation and ability brought the implication that if the new innovation model like green human resources would like to be successfully applied, then it could be justified using these three distinguished components: (1) Employee's working environment prepared the opportunity which is in line with previous research by Mandip (2012) that was the support and activities crucial to empower the preferred behavior (Renwick *et al*., 2013) and changed of corporate culture (Lozano, 2015), (2) Employee's were motivated to perform as they aspired and sufficiently compensated for their performance, as previously studied by Osterloh and Frey (2000) and (3) Employees were capable to perform since they have the essential skills and expertise, in line with previous findings by Stringer (2009) and Roy and Therin (2008) that was skills as in enticing new talent to prepare employees with essential skills necessary. This finding also supported the previous researchers in the field of HRM that effectiveness and success in any management innovation and detection of the fit strategic means were subject to on the readiness and ability of the employees participated in the process (Boselie *et al*., 2005; Mishra *et al*., 2014). In line with Gerhart (2005), the unsuccessfulness and difficulty to apply the concept were due to the effect of lack of ability, demotivation, absence of occasions to execute GHRM requirements. According to Gerhart (2005), HRM practices influenced employee's ability (e.g., by applying the proper selection, appointing and training methods), motivation (e.g., by applying performance-linked remuneration) and opportunity (e.g., by empowering teams or recommendation systems) to boost the company's accomplishment. As such the management had to ensure the continuous improvement in the area of recruitment, training and personal values to increase the level of understanding an organization's environmental culture, attention to the environmental management practices and nurturing the level of eco-literacy. Given that the green HRM narrative was for the most part of a Western concept and truly young in Asian economic, the negative coefficient also might have indicated that in this area was found an imperative gap for future studies to explore what abilities to develop if companies would like to go green

in supporting the national agenda mainly in the setting to achieve the vision of Melaka, Malaysia into a Green Technology state by 2020. However, when applied to Malaysian setting the concept might turn into OMA instead of AMO so this was the main difference between West and East.

The objective of this study had been to investigate the relationships among ability, motivation, opportunity and green HRM innovation. There was still not much research done in this area and the existing results were not conclusive. In addition, such research had not been carried out in Malaysia up to this point making a comparison with previous findings unavailable. However, the findings could be a starting point that nurturing green ability, motivating employee's to be green and providing green opportunity allows firms to be innovative in managing the green workforce. This suggests that organizational capabilities related to environmental management did not necessarily create competitive advantage. The crucial might be the firm's effort to make effective use of these capabilities in the development of GHRM-innovation that actually contributed to better performance. This indicated how important the attitudes and decisions of managers were for they determined to overcome internal barriers to the development of organizational capabilities linking a newly established AMO theory with GHRM-innovation. Applying the AMO, in this study, selection should have been focussed to prospective employee's who understood organization's environmental culture and paid close attention to the environmental management practices. Furthermore, to operate effectively in green ability, the company should have hired those who promoted the welfare of others (altruism) and nurture pro-environmental behaviors (biospherism) while, training was aimed at raising the level of eco-literacy. In motivating green employee's, monetary reward and the non-monetary reward could be applied. Similarly, providing green opportunity through employee's and unions was aimed at using resources efficiently, reducing waste and pollution from the work place, encouraging employees to create green job and extending the influence of workers union in the workplace. The important role of worker union was due to the fact that environmentally favorable attitudes and behaviors were driven more strongly by collective than individual self-enhancing concerns (Follows and Jobber, 2000; Kim, 2011).

This study had some limitations that had to be considered. First, this study used a cross-sectional data not a longitudinal sample which was collected at several points in time to support the findings. Second, only links between limited numbers of constructs were examined. Therefore, future research should examine additional variables that were likely to influence the explored relationships. Finally, the obtained results did not imply definitive conclusion about the analyzed relationships and might have limited generalizability due to the industries and geographical specificity of researched sample. Future studies should be expanded to wider geographical territories outside of Melaka so that the findings will be generalizable for the developing country of Malaysia.

CONCLUSION

Sustainability seems to have moved on the typical political agenda including a developing country Malaysia reflected in the current New Economic Transformation Program that has put sustainability as one of the goals of the program. Launched on 25 September, 2010, the Economic Transformation Programme (ETP) was formulated to elevate the country to developed-nation status by 2020. Malaysian companies operating in Melaka have begun to realize this and are managing into conceptualizing sustainable green HRM practices and anticipating the future business. Although, GHRM as a part of sustainability is an ideology that has appeared in the West within the past few time span, the present study argues its resemblance with some long-existing Eastern cultural value orientations emphasizing the predominance of the welfares of particular social groups (e.g., family) and the upholding of group togetherness. Since Malaysians hold collectivist value, they tend to be more cooperative than those who are individualistic making the initial concept of GRHM is applicable within Malaysian setting under the adjustment into Opportunity Motivation Ability (OMA) instead of the famous AMO.

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